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THE TURNOVER OF FACTORY LABOR

THE TURNOVER OF FACTORY LABOR

BY

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WITH AN INTRODUCTION

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TO

MY FATHER AND MOTHER

PREFACE

This work is called the *Turnover of Factory Labor* to distinguish it from studies of the turnover among seasonal out-of-door laborers. The turnover among the roving out-of-door workers who wander from one seasonal occupation to another is a distinct problem, requiring separate study. The title to the work, therefore, is only approximate. The study is intended to cover the turnover among manual laborers generally, with the exception of the peculiar class of out-of-door seasonal laborers.

The study was commenced in 1913, and most of the data had been collected previous to the acute labor situation created by the war in 1916, and especially in 1917, and resulting in the unprecedented instability of labor which first focused public attention on the problem. Because the situation since 1916 has been distinctly abnormal, and because it is desired to treat the turnover as a normal rather than as an abnormal problem of industry, as a peace, rather than a war, problem, the illustrative material has been confined largely to years previous to 1916 and the causes of the turnover have been discussed from the standpoint of the situation in peace times.

Although nominally a study of the labor turnover, the work is fundamentally a study of methods of handling men. The subject of handling men has been strangely neglected in works on management. These works deal fully with the organization for and methods of handling materials and controlling manufacturing processes, such matters as purchasing, storing materials, planning, routing and scheduling

work, the numerous devices for establishing simple and reliable central control over operations, but among the processes to be controlled the handling of labor is not included. The idea that a definite and well planned labor policy is as necessary as standardized methods of manufacturing, and that means are necessary to provide for the formulation and execution of such a policy, is lacking. The fundamental thesis of this work is the neglected truism that a definite plan and specific responsibility for creating and executing the plan are as necessary in dealing with labor as in controlling manufacturing operations.

The turnover due to seasonal fluctuations in the volume of employment has been somewhat cursorily treated. The proportion of the turnover due to this cause has been analyzed and the principal methods of regularizing employment briefly discussed. The subject of seasonal fluctuations in employment is a complicated one, however, and can be more advantageously discussed in connection with studies of unemployment.

This work has been made possible only by the extensive and generous coöperation of a large number of persons. I am deeply indebted to numerous executives and employment managers who have granted generous interviews, opened their records for the compilation of statistics, and in many instances have themselves compiled statistics. Not only are these persons too numerous to mention, but to do so would disclose the identity of many establishments which prefer to be unknown. I am especially indebted to Professor J. R. Commons, in whose seminars the preliminary work was done, and who furnishes an introduction; to Mr. C. W. Price, Field Secretary of the National Safety Council, who thoroughly appreciated the problem long before it came to public attention, who had much to do with the study's being undertaken, and who greatly facilitated the study by his encouragement and by providing numerous contacts with in-

terested executives; and to Professor H. A. Millis, of the University of Chicago, under whose direction the study was completed as a doctor's dissertation. Professor Wm. M. Leiserson, of the University of Toledo, under whose direction data were collected for the United States Commission on Industrial Relations, made important suggestions concerning methods of obtaining data. Professor Field, of the University of Chicago, has read Part I, and offered helpful suggestions relating particularly to the tables, but I am responsible for the methods of statistical presentation. Most of all I am indebted to my father and to my wife for encouragement and advice. They have read the manuscript at various stages and suggested important improvements. My wife has read a large part of the proof and prepared the index.

SUMNER H. SLICHTER.

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INTRODUCTION

The several years which Mr. Slichter has devoted to the study of this important subject has now resulted in the first comprehensive treatment of labor turnover. Working as a factory employee in some of our largest industrial establishments, he himself has lived through the machine process which underlies the labor turnover. Then visiting many factories and talking with employers and workingmen; then following this up with schedules and questionnaires so as to widen his basis of information, all of this preparation and collection of material for his work has given us an all-round view of the problem.

In addition to this, his remarkably keen analysis of all the contributing factors, whether they be found in the character of the worker, the kind of work, the character of the boss, or the larger social and economic relations which surround the factory, is a model for all investigators and a guide for all statistical compilations which may hereafter be undertaken in the exposition of this subject.

More than this, the work is not one of mere compilation and academic interest; it also has the highly important practical purpose of guiding the employer in his efforts to reduce the labor turnover and of showing him how far he may hope to correct it, and what he can gain thereby.

During the past twenty years the so-called science of scientific management has occupied the attention of employers and engineers and those interested in labor questions. It was felt that if the worker could be carefully analyzed in his motions and timed in his processes, and that

if the method of payment could be so devised as to offer him greater incentives and inducements, the efficiency of labor would be greatly increased and the cost of labor greatly reduced.

But suddenly it is found that one of the greatest costs of labor is not the inefficiency of the individual but the lack of goodwill of labor as a whole. Labor turnover, which is a group phenomenon and not an individual question, suddenly looms up as an intangible overhead cost, and the future scientific management must deal not alone with individuals as such but with labor as a class and as a whole.

The employer or superintendent or publicist who fully grasps all that is implied in this profound subject of labor turnover will be in a position to meet the critical problems of the future, and no greater service could have been performed for American industry than that which is now done by Mr. Slichter in his study of the turnover of factory labor.

JOHN R. COMMONS.

University of Wisconsin.

PART I

GENERAL ANALYSIS OF THE TURNOVER

CHAPTER I

WHAT IS THE LABOR TURNOVER?

1. What is meant by labor turnover?

From the employment bureau of a huge machine works the investigators in the Pittsburgh Survey found that in the year 1906 it was necessary to hire 21,000 men and women to maintain a force of 10,000.[1] The superintendent of a mining property in the Pittsburgh district insisted that in his experience it was necessary to hire 5,000 men annually in order to maintain a force of 1,000 men. These latter figures were not based on records, but the largest coal operator in the district thought that 2,000 hirings a year for every 1,000 permanent positions was not too high for the coal mining industry.[2]

This change in the force due to men leaving is known as the turnover of labor. The turnover may be defined as *all* terminations of employment in the force regardless of cause. Every worker who leaves the employ of a given establishment for whatever reason constitutes a part in the turnover of that establishment. The study of the labor turnover embraces the study of the causes and effects of every termination of employment and the means of preventing such terminations of employment as are socially undesirable.

Some writers suggest that the turnover should not include terminations of employment for which new hirings

[1] Commons, "Wage Earners of Pittsburg," *Charities and Commons*, v. XXI, p. 1054.

[2] *Ibid.*, p. 1054.

are unnecessary, such as lay-offs on account of lack of work.[3] The reason for this view apparently is that since the men in these cases are not needed, their leaving represents no loss to their employer.

It is impossible to agree with this view. From the standpoint of the employer it is misleading to assume that terminations of employment of men who are no longer needed and whose leaving, therefore, does not necessitate the hiring of new men, represent no loss. Most reductions in the working force are more or less temporary, due to seasonal fluctuations in the business or to more or less temporary business depression. The time soon comes when business increases and additional men are required. It is then necessary to break in new men. The fact that it is cheaper to let men go than to pay them to do nothing does not alter the fact that a temporary reduction in the force represents as real a loss as do resignations or discharges of men who must be replaced immediately. The only difference is in the immediateness with which the loss is felt. In the latter case it is necessary to break in a new man at once; in the former case the breaking in of a new man is postponed until business picks up. It is important for the employer to know how much cost of breaking in men he incurs because of fluctuations in the volume of his business.[4]

[3] Mr. R. A. Feiss suggests that during periods in which there is a reduction in the size of the force the number of hirings should be taken to represent the turnover. This is equivalent to the number of terminations of employment minus the decrease in the number employed. *Bulletin of the Society to Promote the Science of Management*, v. I, No. 6, pp. 13-14; *Annals of the American Academy of Political and Social Science*, v. LXV, May 1916, on "Personnel and Employment Problems," p. 51.

[4] It may be suggested that there are numerous temporary jobs, such as loading and unloading shipments, for which the employer goes to no expense in breaking in men; that these jobs may be

The turnover, moreover, must be considered not only from the standpoint of employers, but also from the standpoint of the workmen and of the public. To both workmen and the public nearly every termination of employment involves cost, whether it results in a reduction in the force or whether the worker must be replaced. Whatever the cause of the termination of employment, the workman must usually undergo a period of unemployment, short or long, before he finds another job. Perhaps he must

responsible for numerous changes of personnel, and that to include these changes in the turnover figures is to misrepresent the situation in the plant as a whole. It is not true that common laborers do not go through a breaking in process. A common shoveler, a ditch digger, a trucker, accomplishes much less at the beginning than after several days on the job. Moreover, where the work has been studied, it is possible to increase greatly the output of this class of labor by definite training. There is also a great difference in men. A gang of carefully selected permanent yard laborers is much more valuable than a gang picked up on short notice from the material available. The temporary character of work which makes impractical the maintenance of picked gangs of trained laborers is a real cost because it increases the expense of doing the work. It is important that the existence of such temporary work be brought to the attention of the management by turnover figures.

Aside from the financial interest of the management in eliminating temporary jobs, every employer has a duty to other employers, to laborers, and to the public in general to reduce to the minimum temporary jobs which result in the creation of habitual floaters. To guide him in the fulfillment of this obligation, he should have statistical evidence of the amount of temporary help which he employs.

The answer to the argument that the inclusion of temporary help in the turnover statistics distorts the figures for the force as a whole, is that this can be avoided by proper classification. As will be pointed out below, the turnover average for a plant being a composite average of unlike groups of workers does not possess much significance in itself. The real significance of all turnover statistics can only be revealed by classification.

try several jobs before he finds one to which he is adapted. He must go through a period, short or long, of learning the new job. This means loss of wages to the workman, of social income to the public. There is also a social cost due to the increased accident frequency during the learning period on the new job, and often a cost due to demoralization of workmen by the unemployment, discouragement, etc. Because the reduction of forces often occurs more or less simultaneously in all establishments in a given industry, workmen who lose their jobs on this account experience greater difficulty in obtaining work than those who leave in periods of increasing demand for labor. For this reason terminations of employment brought about by reductions in the force are perhaps of greater importance from the worker's and public's standpoint than terminations of employment due to other causes.

Not only is there no adequate reason for ignoring terminations of employment which represent reductions in the force, but there are positive reasons why such terminations should be included in the concept of the turnover. The various causes of terminations of employment are not totally independent in their action, but are interdependent and cumulative. To a considerable degree voluntary quitting among workers is due to unstable habits engendered by the temporary character of the work itself. It is impossible to understand the transient habits of many workmen without knowledge of the industrial conditions, including temporary jobs, out of which these habits in large measure arise.

Should transfers of employees from one job or department to another, involving change of employment but not termination of employment, be included in the turnover?

Transfers are of four principal kinds:

(1) Transfers due to unadaptability of workers to their work; (2) transfers on account of unsatisfactory relations

of workers with the foreman or other workers; (3) transfers on account of promotion; (4) transfers on account of scarcity of help in one department and superfluity of help in another department. Transfers of the first type are substantially equivalent to terminations of employment; transfers of the second type are similar to terminations of employment in important respects; transfers of the third and fourth types are distinctly different from terminations of employment.

A workman who fails to make good in one department, instead of being discharged, is transferred to a vacancy in another department. This practically amounts to discharging him from his first position and hiring him again for the second. The transfer means that the expenditure incurred in attempting to train him for the first job is lost as completely as if he had been discharged. In order to break him in on the new job a new investment in training him is almost as fully necessary as though he were a new man. The only difference between the transfer of a worker and the hiring of a new one is that the management, knowing the old worker better than a new man, can place him more intelligently, that the old workman is somewhat adjusted to the spirit and atmosphere of the company, and that in some cases out of gratitude for being given a second chance he makes a special effort to make good. As a check upon the employment department, transfers of men who fail to make good are equivalent to discharges, for nearly all such cases represent an error in hiring.

Transfers of workers on account of unsatisfactory relations with the foreman differ from transfers on account of incompetence in that they do not necessarily involve a total loss of the amount invested in training the worker for his original task. It may be possible to transfer the worker to the same or similar work in another department. In case the same or similar work is not available, the in-

vestment in training the worker for his first job may be almost entirely lost just as is true in transfers of the first type.

Promotions are not as a rule equivalent to ordinary terminations of employment because they usually do not involve a loss of the investment which the employer has made in the workmen. Workmen are usually promoted to positions in which their previous experience is not only valuable but often necessary. And even though promotions often render part of the previous investment in the employee obsolete, the employer is compensated for this loss by obtaining a new asset in the enhanced good will and loyalty of the promoted worker. Promotions, therefore, cannot be regarded as closely comparable with terminations of employment.

Transfers between departments to adjust the force to the volume of work are not comparable to terminations of employment, because even though the men's work in the new department is totally different from their previous work, the investment in breaking them into their previous work is not lost, for they are available for it when required.

In spite of the fact that many transfers are substantially equivalent to terminations of employment, it is not customary to include them in turnover figures, and there is no reason why they should be included. But as transfers frequently are a means for retaining in the employ of the company men who otherwise would be discharged or laid off or who would resign on account of dissatisfaction (such as workers out of harmony with their foremen), a report on the number of transfers between departments and of the permanent transfers between jobs within the same department should accompany every report on the turnover. The transfer figures should be classified according to the principal reasons for transfer.

Every employment department hires a certain number of men who fail to report for work. Should these men be included in the turnover? These men represent no loss of investment to the employer. They are no possible indication, as are resignations, of unsatisfactory conditions within the plant. These cases are important only in that they delay the filling of the vacancies. There is no reason to include them in the turnover.

2. The expression of the turnover.

The rate of labor turnover is usually expressed in the form of the percentage of the number of terminations of employment to the average force on the payroll during a given period. The period selected for expressing the turnover is usually a year. Thus, if an average force of fifty men were employed during a year and within that time fifty men quit, the turnover would be 100 percent. If, with an average force of fifty, twenty-five men quit during the year, the turnover would be 50 percent.

The question may be asked, why take the average force as the base for calculating the turnover? The average is simply a fictitious figure, a number probably never actually on the payroll.

The average, though a fictitious figure, is the proper base for measuring the turnover because it measures the risk of change to which the force is exposed. The risk of change varies with two factors—the number of men employed and the length of time they are employed. One hundred men present a greater risk of change than fifty men. One hundred men employed six months present a greater risk of change than one hundred men employed three months. An extremely accurate calculation of the turnover would be based on the rate of change per given number (say 1,000) man-days. An establishment which in the course of a year employs its force 600,000 man-days (*i.e.*, the equivalent of one man 600,000

days or 2,000 men 300 days) is exposed to a greater risk of change in its force than an establishment which employs its force 300,000 man-days.

The average force takes into account both of these elements of risk—the variation in the size of the force and the variation in the length of time the various numbers of men are on the payroll. For example, suppose that two plants each start the year with forces of fifty men. They maintain their forces at fifty men constantly for six months. Then plant A increases its force to one hundred men, at which figure it maintains its force throughout the remainder of the year. Plant B maintains its force at fifty men until the end of the ninth month, when it too increases its force to one hundred, at which figure the force remains during the year. Obviously, the exposure to change in the force is greater in plant A than in plant B, for in plant A fifty men are employed three months longer than in plant B. Figuring twenty-five working days to the month, plant A worked 3,750 man-days more than plant B; 22,500 compared with 18,750, or 20 percent more. This difference is reflected in the averages of the forces which for plant B is 62.5 men, for plant A 75 men, or 20 percent more.[5]

In order to have an adequate picture of the stability of the force it is necessary to know the number of men who have *not* changed as well as the number who have left. A turnover of 100 percent may be caused by the entire force changing in the course of the year or by one-tenth of the

[5] A proposed method of expressing the turnover is to add the number of men hired during the year to the number of men quitting, divide by two, and compare the result with the average force employed. The reason for introducing the number of men hired into the calculation is not clear. Hirings are distinct from terminations of employment. They take place for different reasons. An average of the hirings and terminations of employment is meaningless.

force changing ten times during the year. The turnover statement in addition to the total number of changes should show also the number of the men on the payroll at the beginning of the year who remained continuously in the employ of the company throughout the year. Thus an establishment employing one hundred men might have one hundred changes during the year but find that of the one hundred men who were on the payroll at the beginning of the year, eighty were still in its employ at the end of the year.

In addition to figures indicating the permanency of men, the manager should have figures indicating the permanency of jobs. The turnover statement, therefore, in addition to the number of permanent men and the number of transient men, should show the number of steady jobs and the number of temporary jobs.

3. Classification of the turnover.

The turnover is ordinarily divided into four parts: (1) resignations; (2) lay-offs; (3) discharges; and (4) that due to miscellaneous causes.

These divisions are important because they indicate roughly the immediate responsibility for the terminations of employment. It is important to know the immediate responsibility for terminations of employment because the nature of the causes operative in these various cases is different. Resignations represent roughly changes due to the workman's volition, lay-offs, changes due to lack of work, and discharges, changes due to the employer's volition. The turnover due to miscellaneous causes includes terminations of employment due not to the volition of the worker or the employer or to fluctuations in the volume of work, but to such causes as death, disability, sickness, and superannuation.

The division of the turnover into resignations, lay-offs, and discharges, however, corresponds only roughly to the

distinction between terminations of employment due to the workman's volition, to lack of work, and to the employer's volition. In piece work shops, a shortage of work causing a reduction in earnings is likely to cause numerous resignations. These resignations are substantially equivalent to lay-offs due to lack of work—lack of work is the fundamental reason why the men quit. Discharges occur also for practically the same reasons as resignations. A man becomes disgusted with his job, decides he is going to quit or that he does not care if he is discharged. He begins to loaf or do careless work. When reprimanded by the foreman he answers with some impudent reply and is discharged. The ultimate reason for the discharge is not that the man was unsatisfactory, but that he did not like his job and caused himself to be discharged.

There is great variation in the use of the words "lay-off" and "discharge" which renders it necessary in dealing with figures from any plant to know the exact meaning attached to the terms in that plant. Many plants have a rule by which men who without notice fail to report for work after a given period are counted either as laid-off or discharged. As terminations of employment which in most plants would be classified as resignations without notice are very numerous, this brings about an important modification in the turnover figures. In a Chicago plant which counted men leaving without notice as discharged, out of 4,206 changes for all causes in the year 1916 there were 619 due to absence without notifying the foreman (practically all cases of men quitting without notice), raising the total number of discharges from 467 to 1,086. In 1913, out of 2,679 terminations of employment for all causes, there were 511 cases of discharge for absence without notice, increasing the number of discharges from 495 to 1,006.

The words "lay-off" and "discharge" are sometimes used interchangeably. In a Chicago plant all dismissals due to

incompetence, laziness, unreliability, and absenteeism are classified as "lay-offs." Only dismissals due to insubordination, dishonesty, fighting, or other flagrant misconduct are classed as "discharges." A New York plant classes some terminations as "involuntary resignations," in spite of the fact that it classifies other terminations as discharges. The cause of the involuntary "resignations" was stated to be the "request" of the management.

Lack of uniformity exists between plants in the handling of temporary and permanent lay-offs. Suppose a worker is laid off for a week, being told to come back at the end of that period. Is this to be counted as a lay-off in the turnover figures or not? Since there is no real termination of employment here but a mere lapse in the continuity of service, this does not appear to be a case of a "turnover," and in most establishments it would not be so counted.[6] But suppose the man is told to come back after three months? The period intervening is so long that the man is compelled to seek other work. The promise of a job so far in advance is necessarily highly indefinite. These reasons lead most employment men to classify lay-offs such as this as permanent lay-offs, properly to be included in the turnover. Where between these two extremes should the line between permanent and temporary lay-offs, lay-offs which represent a termination of employment and those which do not, be drawn? The two shade off imperceptibly into each other. The correct principle seems to be that if the workman when he leaves has a definite offer of a job with the establishment at a definite time and if that time be sufficiently near so that he can be reasonably expected to wait for it, the lay-off is temporary. Otherwise it is permanent and represents a termination of

[6] If the man failed to return at the end of the week, it would be considered a termination of employment due to lay-off or, perhaps more accurately, due to resignation.

employment. But there are promises of all degrees of definiteness, and what is a reasonable time to wait for the promised job?

Mr. R. A. Feiss has suggested[7] that the turnover be divided into "avoidable" and "unavoidable" quittings. "Unavoidable," he says, "should include discharges, deaths, sickness, accidents, marriage, retirement, etc. Avoidable should include cases of dissatisfaction and all cases that cannot unquestionably be classed as unavoidable."

The separation of avoidable and unavoidable terminations of employment is undoubtedly desirable in so far as definitely possible, because it indicates to the management the minimum to which it can hope to reduce its turnover and how far this minimum is from attainment. In practice, however, reasons are extremely difficult to classify. To illustrate: A workman leaves to take a better position in another plant. The other firm may offer more than his present employer can afford to pay or more than the employer thinks the man is worth. Such a case on its face appears to be an unavoidable quitting. But although the immediate wages which the present employer can pay the workman are below those which he can obtain elsewhere, the ultimate prospects of advancement with the present employer may be better than in the new place. If under these circumstances the man quits, the employer may properly lay it to his failure adequately to impress the man with the future possibilities of his present work. It is then an "avoidable" termination of employment.

Since in the compilation of turnover statistics such minute investigation of the cases is impossible, Mr. Feiss' suggested division seems unattainable. Even the causes of quitting which he classifies "unavoidable" are in many

[7] *Annals of the American Academy of Political and Social Science*, v. LXV, May 1916, on "Personnel and Employment Problems," pp. 51, 52.

instances not so. Discharges, for example, in the majority of cases probably are avoidable. In most cases they represent an error in hiring by the employment department, inadequate instruction of the worker in his job, or improper methods of handling him. Discharges can be prevented by more efficient hiring, by better training of workmen, and by proper handling of men. Most accidents are avoidable, and many cases of sickness and poor health are due to avoidable causes under the control of the employer.[8] Attractive wages and good working conditions influence even the readiness with which women leave industry to marry. The most desirable classification of the turnover seems to be: (1) resignations (exclusive of the specific causes of resignations such as sickness, superannuation, classified separately); (2) lay-offs; (3) discharges; (4) death; (5) accident; (6) sickness; (7) superannuation; and (8) marriage; with no attempt to distinguish the avoidable and unavoidable cases under these separate heads.

[8] Ill health and sickness may be caused by unsanitary working conditions. A medical department providing advice and first aid, reduces the sickness rate materially. Medical examination of all applicants for work, preventing the hiring of persons either unfit generally or unfit for the specific job, also reduces the turnover due to ill health. A visiting nurses promotes health among workers by her influence upon home conditions. Finally, a number of firms have undertaken campaigns of education in hygiene and right living. The classification of sickness and ill health as unavoidable causes of the turnover indicates the danger in attempting to classify the turnover into avoidable and unavoidable.

CHAPTER II

THE SIZE OF THE TURNOVER

The turnover is the product of many variables such as: (1) the general demand for labor; (2) opportunities for other employment in the particular locality; (3) living conditions in the locality; (4) steadiness of work in the establishment; (5) nature of the work and of working conditions; (6) character of the men; (7) character of the management; (8) season of the year. These numerous factors affecting the turnover rate cause it to vary according (1) to time, (2) to industry, (3) to locality, (4) to the individual firm, and (5) to the character of the workmen.

On account of this wide variation in the turnover rate in different plants and in all plants at different times, it is difficult to state a typical rate of turnover. If, however, in a year of normal prosperity (that is, a year not of great scarcity of labor such as has existed particularly since the latter part of 1915 and the early part of 1916, but of good demand such as existed in 1910 and 1913) a large number of factories in different industries and in different localities be taken and the total number of terminations of employment be added, the sum will in most cases be found to approximate the sum of the average number of men employed in the plants. In other words, the average turnover for the group will be found to approximate one hundred percent. A considerable range exists in the results obtained, and the above statement that the sum of the ter-

minations in a group of plants tends to equal the sum of the average forces of the plants is to be understood as only a rough statement. Particularly if the establishments are mainly from one industry or from one locality, is the variation of the average turnover from one hundred percent likely to be large. The larger the group of establishments taken, however, and the more diversified according to industry and location, the closer is the turnover apt to be to the average force employed. Likewise if the turnovers of a large group of diversified factories for a year of good labor demand be plotted on a curve of distribution, the median will be found usually to fall in the neighborhood of one hundred percent.

Mr. M. W. Alexander of the General Electric Company collected figures from twelve metal working establishments for the year 1912, which show that the number of workers employed on January 1, 1912 was 37,274 and at the end of the year 43,971, an increase of 6,697, but that the number of new employes hired during the period was 42,571, this indicating that 35,874 had left.[1] Using as a base the number of workmen on the payroll on January 1st plus half the increase during the year (a total of 40,622), in order to approximate the average number employed, gives a turnover of 88.4 percent.

Mr. W. A. Grieves of the Jeffry Manufacturing Company collected figures from twenty metal working establish-

[1] "Waste in the Hiring and Firing of Men." *Proceedings of National Machine Tool Builders' Association,* 1914, p. 91; *Proceedings of National Association of Manufacturers,* 1915; *Annals of American Academy,* May 1916, v. LXV, p. 136. There is some difference in the figures which Mr. Alexander gives in his address before the National Machine Tool Builders' Association and those which he gives in the address reprinted in the *Annals of the American Academy.* The figures above are from the article in the *Annals,* the more recent publication.

ments employing 44,000 men which hired during 1913 a total of 69,000 men to maintain their forces.[2]

The Tariff Commission appointed by President Taft found that a group of woolen mills employing a total of from 11,000 to 13,000 wage earners, hired, in 1907, 18,214 men, in 1908, 12,932, in 1909, 18,255, in 1910, 15,188, the size of the force undergoing relatively slight change.[3]

The then Department of Commerce and Labor published figures based on the records of a mutual benefit association of a steel mill said to be typical of the industry, which show that during the six years 1905 to 1910 inclusive the force employed by this mill on January 1st averaged 14,701 but that during this period the mill hired 67,715, or an average of 11,286 per year and lost 63,021, an average of 10,503 men per year. A comparison of the total number of terminations (63,021) with the sum of the number of men on the payroll on the six January firsts (88,206) gives an average rate of turnover of 71.5 percent per year.[4] These figures, however, do not include the men leaving but returning during the year. Many of the terminations of employment of men rehired during the year undoubtedly represent temporary lay-offs which are not ordinarily included in the turnover. Some of them undoubtedly represent indefinite and extended lay-offs such as are usually included in the turnover. The total number of men leaving, but returning during the same year totaled 41,302 for the six year period, which added to other terminations gives 104,323 terminations temporary and permanent for six years, an average rate of 118.2 percent, taking the force as of January 1st as the base.

[2] W. A. Grieves: "The Handling of Men." An address before the Detroit Executives' Club. Privately printed.

[3] 62nd Congress, 2nd session, *House Document* No. 342, p. 983.

[4] "Labor Conditions in the Iron and Steel Industry," v. III, p. 381, 62nd Congress, 1st session, *Senate Document* No. 110.

Studies by the Bureau of Labor Statistics in the New York cloak, suit, and skirt industry showed that during the year ending July 31st, 1913, 1,429 pressers, tailors, cutters, and finishers underwent 1,231 changes of employment.[5]

The Bureau of Labor Statistics also found that in 12 operations[6] in 90 shops in the New York cloak, suit, and skirt industry, an average of 1,435 workers were employed during the year ending July 31, 1913, but that during this period a total of 4,858 workers were employed by the 90 shops at these operations.[7] We know that every name above the number on the payroll at the end of the year (with the exception of whatever small proportion of names might be omitted from the payroll on account of absence) must represent a termination of employment. The number of workers employed in the 12 operations in the 90 plants during the last payroll period was 1,534,[8] indicating that 3,324 workers had previously left, a turnover rate of 231.6 percent. This of course does not include whatever terminations occurred during the last payroll period. This

[5] "Wages and Regularity of Employment in the Cloak, Suit, and Skirt Industry," U. S. Bureau of Labor Statistics, *Bulletin* No. 147, pp. 131-132.

[6] These operations are: cutters, skirt cutters, canvas cutters, jacket upper pressers, jacket under pressers, skirt upper pressers, skirt under pressers, part pressers, basters, finishers, sample finishers, and skirt finishers. *Ibid.*, pp. 39, 40.

[7] This does not mean that 4,858 separate individuals worked at these 12 operations in these 90 shops, but that taking the number of names which appeared on the payroll of each of the 90 shops and adding them together gives a total of 4,858. The same individual may have worked in many shops and the number 4,858 undoubtedly contains many duplications. This is immaterial from our standpoint, since we are simply concerned with the number of changes of employment which occurred in these shops. In a study of unemployment the elimination of the duplications is of course vital.

[8] Calculated from data given in *Bulletin* No. 147, pp. 21-28.

unusually high turnover is due in part to the marked seasonal character of this industry.

During May and June, 1916, 10 plants in Rochester, New York, lost men at the rates, calculated on an annual basis, shown in the following table:[9]

Plant Number	Annual rate of turnover
1	37%
2	39%
3	42%
4	56%
5	98%
6	105%
7	141%
8	154%
9	167%
10	217%

The weighted average for the entire group was 76 per-cent, the unweighted average 106 per cent.

As the turnover during May and June is generally larger than the average monthly rate, the actual annual turnover in these plants was probably somewhat less than the rates above given.

The industries represented by the 10 plants included cameras and photographic supplies, clothing, optical goods, machinery, buttons, shoes, and instruments.

Miss Van Kleeck found that 163 women employed in the New York bookbinding trade underwent approximately 159 changes of position during a year.[10]

The writer collected figures from 105 factories and mines for the United States Commission on Industrial Relations. The figures in 67 cases are for the year 1914, a year of industrial depression when the turnover was below

[9] That is, the actual percentage of terminations to the average force during the two months was multiplied by six in order to give the annual rate of turnover prevailing during these months.

[10] "Women in the Bookbinding Trade," p. 114. *Publications of the Russell Sage Foundation.*

normal, in 20 cases for the year 1913, when turnovers were fairly high, in 8 cases for 1912, when turnovers as a rule were less than in 1913, although greater than in years of depression such as 1908 or 1914, in 6 cases for twelve months extending over parts of 1913 and 1914 (usually ending June 30, 1914), and in one case each the figures were for 1909 and for a twelvemonth period including parts of 1912 and 1913 or 1914 and 1915. In one case the year was not specified. On account of the preponderance of data from 1914, the figures probably somewhat understate the size of the turnover. The diversity of industries represented by the 105 establishments probably eliminates great abnormality due to the character of the industries of the plants.[11]

On account of the difficulty of obtaining figures of the average force calculated by a uniform method, in gathering these data the firms were requested to report the maximum and minimum number of employees on the payroll at any time during the year. The average of the maximum and minimum force was taken as the base for calculating the turnover. Although in a few cases this rough method may introduce substantial error, it is believed that when data from a large number of plants are combined the error is negligible.

[11] The industries represented by these 105 establishments include: agricultural implements, automobiles and automobile parts, arms and ammunition, bicycles and motor cycles, brass fittings, cement, cereal foods, chemicals, clothing, coal mining, copper mining and refining, cotton goods, department stores, electrical goods and machinery, flour, foundries and stove works, furniture, iron and steel, machine tools and machinery and engines of all sorts (Corliss engines, linotypes, refrigerating machinery, molding machines, silk mill machinery), meat packing, metal working of all sorts (boilers, heaters, locks and hardware supplies, metal beds, power transmission material, pneumatic goods, railroad supplies, saws, valves and fittings), rubber goods of all sorts, sanitary ware, sashes, doors and woodworking, scales and trucks, shoes, sugar refining, telephone apparatus, typewriters, watches.

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The average of the maximum and minimum forces of these 105 plants was 226,038. The total number of terminations of employment among the entire 105 plants in the course of a year was 225,942, a turnover rate of almost exactly 100 percent. The size of the turnover in individual plants varied from 348 percent to 8 percent. In 11 plants it was 200 percent or over, in 41 plants 100 percent or over, in 5 plants the rate was below 20 percent, in 16 plants below 40 percent.

Table I classifies the 105 plants according to the size of the turnover.

TABLE I

SIZE OF THE TURNOVER AMONG 105 ESTABLISHMENTS

Size of turnover	Number of establishments with turnover of respective sizes	Average of maximum and minimum forces	Number of terminations of employment
200 percent or over	11	12,788	30,014
100 percent to 200 percent .	30	69,797	105,857
80 percent to 100 percent ..	9	24,913	22,416
60 percent to 80 percent ...	21	60,021	41,814
40 percent to 60 percent ...	18	38,756	19,523
20 percent to 40 percent ...	11	19,029	6,219
Below 20 percent.....	5	734	99

A group of large stores in the east which in 1913 employed an average of 23,562 employees, hired during that year 36,025 and lost 27,330 employees.

Thirteen street railways, the averages of the maximum and minimum forces of which totaled 46,533, lost 30,968 men in the course of a year, a turnover of 66.5 percent.[12] Four street railway companies reported only the turnover

[12] The year for which figures were supplied differs in the case of different street railway companies. In 10 instances the figures relate to 1914, in 1 instance to 1913, in 2 instances to the twelve months ending June 30th, 1914.

among motormen and conductors. The average of the maximum and minimum forces of trainmen was 11,051, the number of terminations of employment 3,362, a turnover rate of 30.4 percent.

Table II shows the rate of change among different classes of railway employees:

TABLE II

SIZE OF TURNOVER AMONG RAILWAY EMPLOYEES

Class of labor	Number of roads reporting	Total of average forces of all roads reporting (*a*)	Total terminations of employment on all roads reporting	Turnover rate
Engineers and conductors ...	10 (*b*)	9,975	479	4.8%
Firemen and brakemen	10 (*b*)	17,745	6,334	35.7%
Maintenance of equipment .	14 (*c*)	57,651	61,313	106.2%
Maintenance of way and structures	15 (*d*)	64,083	128,034	199.8%
Station agents, station men, telegraphers ..	10 (*b*)	21,894	14,053	64.2%

(*a*) The average force of each road was obtained by averaging the number of men on 12 payrolls—one payroll being taken for each month of the year.

(*b*) The data for these roads relate in 7 cases to 1914 and in 3 cases to 1913.

(*c*) The data for these roads relate in 8 cases to 1914, in 2 cases to 1913, and in 4 cases to the year ending June 30, 1914.

(*d*) The data for these roads relate in 8 cases to 1914, in 3 cases to the twelve months ending June 30, 1914, and in 4 cases to 1913.

The following table classifies the railroads according to the turnover rate of the respective classes of employees:

Turnover rate	Engineers and conductors	Firemen and brakemen	Maintenance of equipment	Maintenance of way and structure	Station agents, station men, and telegraphers
300 percent and over	.....	.....	.....	3	.....
200 up to 300 percent	.....	.....	.....	3	.....
125 up to 200 percent	.....	.....	4	3	1
100 up to 125 percent	.....	.....	2	2	.....
80 up to 100 percent	.....	.....	3	3	1
60 up to 80 percent	.....	2	4	.....	1
40 up to 60 percent	.....	2	1	1	2
20 up to 40 percent	.....	4	.....	.....	3
10 up to 20 percent	2	2	.....	.....	.....
5 up to 10 percent	2	.....	.....	.....	.....
Below 5 percent	6	.....	.....	.....	2

The unweighted average of the turnover rates of the different classes of employees on these roads was as follows:

Occupation	Number of roads reporting	Unweighted average of turnover rates on roads reporting
Engineers and conductors	10	4.0%
Firemen and brakemen	10	34.6%
Maintenance of equipment	14	97.4%
Maintenance of way and structures	15	206.5%
Station agents, station men, telegraphers	10	48.0%

The writer has collected figures for the turnover from twenty-two establishments in miscellaneous industries.[13] The total average force employed by these establishments was 37,247. The number of terminations of employment for the entire group was 44,254, a turnover rate of 118.8 percent. These figures are for various years from 1906 to 1916. In the case of a number of plants, figures for more than one year were available. In such cases the figures for the several years were averaged and the results included in the totals given above.[14] On account of the distribution of returns from these twenty-two establishments over a num-

[13] The industries represented are: Agricultural implements 3, automobiles, cable and insulated wire, cameras and photographic supplies 2, cotton spinning and weaving, dyeing and bleaching, gasoline engines, laundry, machinery (including engines) 2, pianos, printing and binding, power plant, shoes, silk spinning, weaving and dyeing, storage batteries, street railway shops, transmission apparatus, valves and valve fittings.

[14] The years to which the figures relate and the number of establishments for which figures were available in each year are as follows: 1906, 1; 1907, 1; 1908, 3; 1909, 2; 1910, 3; 1911, 5; year

ber of years, it is believed that the average rate for the group is fairly normal.

The unweighted average of the turnover rates in these twenty-two establishments is 103.7 percent. The variation in the rates among the 22 establishments is shown in the table below. Where figures for several years were available for one establishment the average rate was used.

Rate of turnover	Number of establishments with the specified rate of turnover
Below 20 percent	None
20 percent to 30 percent	4
30 " " " 40 " "	2
40 " " " 50 " "	1
50 " " " 60 " "	1
60 " " " 70 " "	1
70 " " " 80 " "	1
80 " " " 90 " "	1
90 " " " 100 " "	1
100 " " " 110 " "	3
110 " " " 120 " "	2
120 " " " 130 " "	2
130 " " " 140 " "	None
140 " " " 150 " "	1
150 " " " 175 " "	1
175 " " " 500 " "	None
500 " " " 600 " "	1
Total	22

The turnover is a problem not merely in the United States. European factory labor also appears to be highly unstable. The *Verein für Sozialpolitik* in its studies of the composition of working forces and of the industrial careers of workmen has published figures for a number of German

ending June 30, 1912, 1; 1912, 6; 1913, 11; year ending June 30, 1914, 1; 1914, 9; 1915, 16; year ending June 30, 1915, 4; 1916, 3.

The total number of instances (66) exceeds the number of establishments (22) because for a number of establishments figures were available for several years.

factories. In a pottery works at Friedrichsfeld (near Mannheim) which employed 1138 men on January 1, 1908, 576, or 50.6 percent of the force employed at the beginning of the year, left during the year and 537 men, or 43.4 percent of the number employed at the beginning of the year, were hired during the year.[15] A spinning and weaving mill at München-Gladbach, employing an average of 720 men in 1908, hired in that year 776 new employees, or nearly 108 for every 100 employed, and lost through leaving for all causes 666, or 92 for every 100 on the payroll at the beginning of the year.[16] A cotton spinnery at Speyer, employing 262 hands at the time of the inquiry, hired 94 new hands during the year (1910) and lost 123, or 35.0 percent and 46.9 percent respectively of the force.[17]

Mr. M. W. Alexander collected from English and German factories the figures shown below.[18]

	Employees at beginning of the year	Employees at end of the year	Number hired during the year
Factory Number 1.....	13,556	16,150	9,530
" " 2.....	10,998	11,914	17,059
" " 3.....	9,165	12,032	10,982
" " 4.....	3,158	3,149	2,148
" " 5.....	365	470	637

[15] Keck, "Das Berufsschicksal der Arbeiterschaft in einer badischen Steinzeugwarenfabrik," *Schriften des Vereins für Sozialpolitik*, v. CXXXV, pt. III, p. 177.

[16] Marie Bernays, "Auslese und Anpassung der Arbeiterschaft der geschlossenen Grossindustrie," *Schriften des Vereins für Sozialpolitik*, v. CXXXIII, pt. I, p. 11 and pp. 38, 39.

[17] Marie Bernays, "Untersuchungen über die Schwankungen der Arbeitsintensität in der Baumwollspinnerei Speyer," *Schriften des Vereins für Sozialpolitik*, v. CXXXV, pt. III, p. 200 and pp. 206, 207.

[18] "Waste in the Hiring and Firing of Men," *Proceedings of the National Machine Tool Builders' Association*, 1914, p. 99.

Calculating from these figures the number leaving during the year and calculating the rate of turnover by comparing the number leaving with the average of the number of employees at the beginning and end of the year, gives the following results:

	Average of employees at beginning and end of year	Number leaving	Turnover rate
Factory Number 1.....	14,853	6,936	46.7%
" " 2.....	11,456	16,143	140.8%
" " 3.....	10,599	8,115	76.6%
" " 4.....	3,154	2,157	68.4%
" " 5.....	418	532	127.3%

CHAPTER III

THE EFFECT OF DIFFERENT FACTORS UPON THE SIZE OF THE TURNOVER—THE VARIATION OF THE TURNOVER ACCORDING TO TIME AND LOCALITY

It was pointed out in the previous chapter that the turnover is affected by many variables, that consequently the turnover rate in different plants or in the same plant at different times varies widely, and that on this account it is extremely difficult to state what is a typical or normal rate of turnover. In the previous chapter some idea was given of the extent of the variation of the turnover between individual plants. Before inquiring what are the specific causes for the turnover, it will be advantageous to inquire into what are the circumstances with which the turnover varies and the extent of the variation with these circumstances. This analysis should prove suggestive as to the nature of the causes of the turnover. In this chapter will be considered the variation in the turnover according to time and locality; in the following chapter the variation of the turnover according to the class of workmen involved.

1. The effect of variations in the demand for labor upon the turnover.

The tremendous increase in the demand for labor caused by the war has resulted in a pronounced increase in the size of turnovers and has impressed manufacturers with the intimate relation between the stability of labor and the state of the labor market. The war situation is extraordinary, however, only in the degree of the intensity of the

TABLE III

FLUCTUATION OF THE TURNOVER WITH PROSPERITY AND DEPRESSION (*a*)

Year	Metal working plant, Chicago		Silk mill, Connecticut		Metal working plant, Chicago (*b*)		Metal working plant, Chicago		Traction company, New Jersey		Traction company, Washington (State) (*d*)		Steel mill (*e*)		Telephone company	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
1906	.....	.....	.....	.....	14,792	.....	.....	.....	.....	.....	.....	.....	19,642	.....	.....	.....
1907	.....	.....	.....	.....	16,541	.....	.....	.....	.....	.....	.....	.....	21,259	.....	.....	.....
1908	1,191	33.3	606	18.3	6,318	.....	.....	.....	4,671 (*c*)	.....	.....	.....	10,941	.....	.....	.....
1909	1,583	38.1	748	23.2	4,880	.....	.....	.....	4,835 (*c*)	.....	.....	.....	15,549	.....	.....	.....
1910	2,372	47.3	909	25.2	12,936	.....	.....	.....	4,967 (*c*)	.....	.....	.....	20,509	.....	.....	.....
1911	1,744	35.5	999	26.7	6,226	.....	.....	.....	4,153	.....	.....	.....	.....	.....	.....	.....
1912	2,107	42.1	973	23.9	7,195	.....	.....	.....	2,840	.....	271	.....	.....	.....	.....	.....
1913	2,679	51.3	1,350	33.1	11,781	.....	509	105.8	2,363	.....	228	.....	.....	.....	.....	.....
1914	880	18.4	1,152	26.5	2,603	.....	263	59.8	1,719	.....	138	.....	.....	.....	.....	.....
1915	1,026	21.4	1,679	36.7	1,285	.....	212	57.0	1,438	.....	.....	.....	.....	.....	2,288	.....
1916	4,206	70.6	.....	.....	.....	.....	495	102.8	.....	.....	.....	.....	.....	.....	3,746	.....

(*a*) In a number of instances accurate figures of the average size of the force in the establishment were not available. It is, therefore, impossible in these instances to indicate the *rate* of turnover, and the number of terminations of employment alone are given. Although the size of the force decreases in years of depression and rises in years of prosperity, these fluctuations in the size of the forces are not sufficient to offset the marked change in the number of terminations of employment. The change in the rate of turnover, despite the change in the average force, is marked.

(*b*) The figures for this plant are for the number of *hirings*, as figures for the number of terminations of employment are not available. The year for which the figures in this column are given is the year ending June 30th of the year specified in the first column.

(*c*) Number hired instead of number leaving.

(*d*) Figures from *Electric Railway Journal*, v. XLVI, p. 9.

(*e*) "Labor Conditions in the Iron and Steel Industry," v. III, p. 381, 62nd Congress, 1st Session, *Senate Document* No. 110.

TABLE III (Continued)

Year	Agricultural implements, Wisconsin		Metal working plant, Ohio		Metal working plant, Wisconsin		Clothing, Cleveland		Traction company, Philadelphia (g)		Rubber goods, Ohio		Woolen industry (h)		Industry not stated (i)		Tags and paper novelties, Mass. (j)	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
1906	60	50.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1907	67	46.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	163	.....	.....	.....	.....
1908	20	13.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	113	.....	.....	.....	.....
1909	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	147	.....	.....	.....	.....
1910	43	23.9	.....	.....	.....	.....	1,570(f)	150.3	.....	.....	.....	.....	Dye	115	.....	30.3	.....	.....
1911	.....	.....	.....	.....	.....	.....	807(f)	84.8	3,025	.....	.....	.....	Works	143	.....	28.7	.....	68
1912	.....	.....	.....	.....	.....	.....	663(f)	74.7	1,768	.....	.....	.....	Del.	.....	.....	20.8	.....	61
1913	57	35.6	.....	.....	3,223	.....	569(f)	65.1	1,492	.....	3,901	.....	1,930	.....	.....	31.9	.....	52
1914	70	43.2	736	83.7	1,639	.....	291(f)	33.5	671	.....	7,038	.....	1,116	.....	.....	16.2	.....	37
1915	25	.....	1,159	134.1	.....	.....	.....	.....	.....	.....	6,744	.....	1,550	.....	.....	.....	.....	28
1916	38	.....	.....	.....	.....	.....	.....	.....	.....	.....	26,610	.....	.....	.....	.....	.....	.....	.....

(f) Figures are for hirings. From address by Mr. Richard A. Feiss before Society for the Promotion of Scientific Management entitled "Personal Relationship as a Basis of Scientific Management." Reprinted in *Annals of American Academy of Political and Social Science*, v. LXV, May 1916, on "Personnel and Employment Problems," p. 52.

(g) Testimony of Mr. F. E. Mitten before the United States Commission on Industrial Relations. Reported in the *Electric Railway Journal*, v. XLIV, p. 22.

(h) Figures for the woolen industry are from the Report of the Tariff Commission on "Wool and Manufactures of Wool," 62nd Congress, 2nd session, *House Document* No. 342, p. 983. The figures are for hirings, not terminations of employment.

(i) From "Profit Sharing in United States." U. S. Bureau of Labor Statistics, *Bulletin*, No. 208, p. 28.

(j) P. J. Reilly—"Work of Employment Department of Dennison Manufacturing Company." *Annals of American Academy of Political and Social Science*, v. LXV, May 1916, on "Personnel and Employment Problems," p. 93.

demand for labor and the consequent effect upon the size of the turnover. Always when men are scarce and jobs are plentiful, workers are prone to change and are careless to conduct themselves so as to avoid discharge. And always when men are plentiful and jobs are scarce, the opposite is true. In spite of the fact that lay-offs are especially numerous during periods of depression, particularly in the early stages of depression, the turnover rate is lower in years of depression than in years of prosperity. On account of the oscillations in the turnover rate corresponding to periods of prosperity and depression, it is necessary, in judging the stability of labor in a given plant, to know the period to which the turnover figures relate.

The variation in the turnover with prosperity and depression is illustrated by Table III, which shows the variation in the turnover in a number of establishments from year to year. The table shows that the turnover rate in times of prosperity is frequently two or three times the rate in times of depression. The years 1908, 1914 and 1915 were years of depression and small turnovers. The years 1906, 1907, 1910, 1913, and 1916 were years of prosperity and of relatively large turnovers. This is reflected in the table. The average turnover rate for six plants for which the turnover rates for 1913 and 1914 are given in the tables was 51.6 percent in 1913 and 33.5 percent in 1914.[1] The average turnover rate for the plants for which the rates in 1908 and 1910 are given in the table was 44.5 percent in 1908, and 52.8 percent in 1910. The total number of terminations of employment in ten establishments for which the number of terminations in 1913 and 1914 is given in the table was 37,732 in 1913 and 14,977 in 1914. For four establishments for which the

[1] In calculating these averages the Cleveland clothing factory was omitted because the rate in that case is calculated on the basis of hirings rather than terminations of employment.

table gives the number of terminations for 1908 and 1910, the terminations in 1910 numbered 23,833 as compared with 12,758 in 1908. Comparative figures for 1915 and 1916 are available only for five establishments. These five establishments, which lost 10,295 men in 1915, lost 35,095 in 1916, an increase of 241 percent, showing conclusively the effect of the great labor scarcity of 1916.[2]

2. Variation of the turnover with the locality.

The turnover varies according to the locality chiefly for four reasons:

1. The demand for labor differs in different localities. The rapid growth of the automobile industry in Detroit and of the rubber industry in Akron, for example, produced a great demand for labor in those localities. The ease of obtaining new jobs in localities such as these leads workmen to change more frequently. The turnover in eight Detroit factories, according to data collected by the writer for the Commission on Industrial Relations, was 315.7 percent, 253.6 percent, 249.3 percent, 187.3 percent, 161.9 percent, 161.8 percent, 153.6 percent, and 101.4 percent,

[2] The great difficulty in obtaining new jobs experienced by workmen who lose their jobs in the early stages of industrial depression is shown by a comparison of the decrease in the number of terminations of employment and in the number of men hired, caused by the depression. The number of terminations of employment decreases much less rapidly than the number of hirings in the first stages of depression. In the later stages of depression, when recovery is beginning and working forces are gradually being increased, the number of hirings rises more rapidly than the number of terminations of employment. The following comparisons of the hirings and terminations of employment in several plants illustrate these points. Note the relatively greater decrease in hirings in 1914, the first year in the respective periods of depression, the relatively greater increase in the number of hirings in 1915, the second year of depression, when recovery was setting in (the last several months of 1915 were prosperous). In the case of the street railway the decreases both continued during 1915 but at

respectively. A remarkable fact concerning these high turnover figures is that with the exception of the plant with the turnover of 153.6 percent[3] they are all for the year 1914, a year of general depression and low turnovers. Even in Detroit, which was less affected by the depression than most communities, turnovers were lower in 1914 than in 1913.

The Ford Motor Company (which is not included in the eight Detroit plants referred to in the preceding paragraph) in 1913, the year preceding the introduction of its profit-sharing plan, lost 50,448 men from a force averaging 13,-623 men—a turnover of 370 percent.[4]

a lesser rate for the hirings than for terminations of employment. In 1916, when prosperity had returned, the increases are substantially the same.

Year	Hirings		Terminations of employment	
	Number	Percent of change from preceding year	Number	Percent of change from preceding year
		Metal Working Plant		
1913	2,429	.....	2,679	.....
1914	517	−78.8	887	−66.9
1915	1,354	+161.9	1,026	+15.7
1916	5,746	+324.4	4,206	+309.9
		Metal Working Plant		
1913	539	.....	509	.....
1914	198	−63.2	263	−48.3
1915	247	+24.8	212	−19.3
1916	569	+130.3	495	+133.4
		Street Railway		
1913	2,541	.....	2,363	.....
1914	1,511	−40.5	1,719	−27.3
1915	1,443	− 4.5	1,438	−16.3

[3] The figures for this plant are for 1913.

[4] Emmet, "Profit Sharing in the United States," U. S. Bureau of Labor Statistics, *Bulletin* No. 208, p. 115.

Mr. Boyd Fisher states that the turnover in 57 Detroit plants in 1916 averaged slightly over 252 percent per plant.[5] The labor demand was of course particularly acute during that year on account of Detroit's large war order business. Incidentally the summer of 1916 was exceptionally hot in Detroit and throughout the middle west. The terrific heat materially affected the turnover.

When a community is known to offer abundant opportunities to obtain work, it quickly draws to it habitual floaters from all parts of the country. The natural tendency for workmen to change more frequently when work is easily obtained is reënforced, therefore, by the attraction of a class of workmen who are drifters by habit and inclination.

The opportunity of the workers of a given establishment to obtain work is affected by whether there are other establishments in the locality employing the same class of help. When an establishment is the only one in the locality employing a given class of help, the turnover of this help is likely to be less than if there are other establishments in the locality employing the same class of labor.

The very fact that workers are changing rapidly renders it easier for them to change since the rapid vacation of positions creates numerous opportunities for employment. On the other hand when the rate of change is slow, jobs are more difficult to find. In this way great instability of labor in a community tends to perpetuate itself because it renders changing easy, whereas great stability of labor tends to perpetuate itself by rendering new jobs more difficult to find.

2. The turnover is high in new towns and in localities which have undergone rapid growth. The new population,

[5] Fisher, "How to Reduce Labor Turnover," *Annals of the American Academy of Political and Social Science*, v. LXXI, May 1917, on "Stabilizing Industrial Employment," p. 14.

by a selective process, tends to be an adventurous, roving type, alert to opportunities to better its condition, or inclined to change for change's sake, for it naturally is this class which migrates to new localities. The new population also contains a large proportion of single men who are not tied down by family responsibilities.

The western mining camps are a good example of new communities composed of an adventurous, roving population. The turnover rate in six western copper mines or smelters according to data collected by the writer for the Industrial Relations Commission was 236.5 percent, 234.8 percent, 219.5 percent, 192.1 percent, 148.8 percent, and 54.4 percent, respectively.

3. The attractiveness of the locality as a place of residence affects the turnover rate somewhat, although on account of the predominant importance of wages and working conditions to workmen, the character of the locality is usually of secondary importance. Workmen who have been used to living in large cities, however, are sometimes unwilling to remain for long periods in small towns and out-of-the-way places such as mines, power plants, and smelters located in the wilderness. On the other hand workmen who have worked in small towns not infrequently find large cities unattractive. The engineer of a large New York power plant tells me he has lost a number of good mechanics brought in from small towns because they or their families disliked the large city.

4. Communities appear to have habits and traditions of stability or instability in their working classes. These habits and traditions are probably founded upon positive conditions such as the demand for labor in the community, seasonal character of the industries, etc. When once established, however, these customs appear to be independent forces in themselves and to exert considerable influence upon the turnover rate.

3. Seasonal and short time fluctuations in the turnover. It is unsafe to compare the turnover rate in one month with the turnover rate in another month and on the basis of the comparison to conclude that the rate is rising or declining or to attempt to calculate the size of the annual turnover from the size of the turnover in a single month or even in several months, because the turnover is subject to seasonal and numerous short time fluctuations.

In highly seasonal industries the turnover is greatest during the busy season, when jobs are easy to obtain and opportunities for workers to better their condition are numerous, and during the transition period from busy to slack seasons, when the force is being reduced. Another reason why the turnover is high during the busy season is that extra workers of less experience and skill than regular workers are taken on during this period. They frequently prove unsatisfactory and must be discharged. The extra workers also often possess exceptionally unstable habits.

In industries in which the turnover is not affected by fluctuations in the demand for labor, the number of resignations is affected by the season of the year. The resignation rate tends to be greater in spring and summer than in autumn and winter. The reasons for this are:

1. The psychological effect of the seasons. The severe and forbidding weather of the winter appears to quell the spirit of adventure in men, but spring produces restlessness and the desire for change, and arouses the latent spirit of adventure. Habitual floaters who settle down in one place during the winter begin their wanderings when spring returns.

2. The disagreeableness of searching for a job in the inclement winter weather deters men from leaving at that time.

3. Instability among common laborers is stimulated in

the spring and summer by opportunities for higher wages in seasonal out-of-door work.

Even laborers who do not change to out-of-door work find that the greater demand and less supply of common labor in the spring, summer, and early fall renders it easier for them to obtain indoor jobs elsewhere.

A Chicago metal working plant which lost 109 common laborers during 1916 lost 28 of them during the four months ending May 1st, 50 during the four months ending September 1st and 31 during the four months ending January 1st, 1917. During January, 1916, only 2 laborers left and during February only 7. Of the 50 laborers who left from May 1st to September 1st, 28 worked less than one month; but of the 28 leaving between January 1st and May 1st, only 4 had worked less than one month.

4. The heat of the summer causes numerous changes among workmen doing hot, heavy work, such as foundry work, yard labor, etc. In July, 1916, a month of unusual heat throughout the middle west, the forge shop of a large Detroit automobile company lost 770 men, a turnover of 83 percent for the single month, and due in great part to the heat. A small brass foundry in a Chicago metal working plant which lost 44 men during the year January 22, 1916, to January 20, 1917, lost 7 men between January 22nd and May 6th, 6 men between September 9th and January 20th, and 31 men between May 6th and September 9th. The size of the force, which averaged 9 men, underwent no material change during the year.

5. A few skilled and semi-skilled men leave for out-of-door work, not on account of the wages, which are likely to be less than they can earn indoors, but because they prefer out-of-door work.

The extent of the seasonal fluctuation in the resignation rate is shown by the following data.

The resignation rate per 100 employees in an eastern silk mill during 1915 and 1916 was as follows:

	1915	1916
January	1.52	3.73
February	1.46	3.58
March	2.12	4.75
April	2.72	6.62
May	2.22	5.53
June	2.53	5.68
July	2.64	5.35
August	4.38	5.56
September	4.45	5.66
October	2.75	3.94
November	1.23	3.42
December	2.47	3.46
Average	2.59	4.77

The gradual increase in the demand for labor during 1915 probably caused the resignation rate in the summer and late spring months to be greater in comparison with the winter and early spring months than would otherwise have been the case and also caused the rate during the fall months to be greater in comparison with the summer months than it otherwise would have been.

The number of resignations per month in an Iowa agricultural implement factory was as follows:

Month	Number of resignations			Month	Number of resignations	
	1915	1916	1917		1916	1917
July	39	14	31	January	7	11
August	2	7	22	February	12	15
September	2	1	.....	March	15	26
October	6	1	.....	April	20	18
November	2	7	.....	May	38	18
December	4	2	.....	June	34	22

July and August are slack months in this plant. The large number of resignations in July and also in June was

due in part to the slack work which interfered with men's earnings. The smaller number of resignations in August was probably due to the fact that the reduction in the force in July left only the older and more stable men.

Three hundred and thirty-two resignations which occurred in a Chicago metal working plant in 1916 were distributed throughout the year as follows:

	Average force	Number of resignations	Percent of resignations to average force
First quarter			
Jan.–March, inc.....	458	65	14.2
Second quarter			
April–June, inc.....	473	99	20.9
Third quarter			
July–Sept., inc.....	489	114	23.3
Fourth quarter			
Oct.–Dec., inc.....	507	54	10.7

Table IV shows the rate of resignation by 4 week pay periods in a large Chicago metal working plant for a series of years.

This plant pays at the end of the year a bonus of 10 percent to each worker who has remained in the employ of the company for the entire year. The pronounced decrease in the rate of resignation in the fall months cannot be interpreted, therefore, as due entirely to seasonal causes, although seasonal influences undoubtedly contribute to the decrease in the rate. The bonus payment also explains the high resignation rate in January which in every year is decidedly higher than in the preceding December or the succeeding February. The workers who have been intending to leave, wait until January in order to obtain their bonus. The table shows, however, that the resignation rate is higher in the spring and summer months than in the

TABLE IV

RATE OF RESIGNATION BY 4 WEEK PAY PERIODS IN A CHICAGO METAL WORKING PLANT

Four week pay period ending in month of	Resignations per 100 employees									
	Average for all years	1908	1909	1910	1911	1912	1913	1914	1915	1916
Average all months	2.0	1.7	2.2	2.3	1.7	2.3	2.2	.9	.9	3.9
January	2.4	3.6	2.1	3.1	2.2	2.0	2.8	1.6	.9	3.3
February	2.0	1.7	2.4	2.8	2.1	1.8	1.8	1.0	.5	3.5
March	2.2	1.4	2.8	3.2	2.5	1.9	2.8	1.5	1.3	2.2
April	2.8	1.7	2.9	4.4	2.3	2.6	3.7	1.4	1.4	4.6
May	3.0	1.3	4.1	3.5	2.7	2.8	4.1	1.6	1.2	5.5
June	2.6	1.7	1.9	2.8	2.3	3.3	3.4	1.2	1.0	5.8
July	2.6	2.3	1.9	3.4	2.1	3.6	3.3	1.2	.6	4.8
August	2.3	1.6	2.7	2.2	1.4	2.8	2.3	1.2	1.0	5.6
September	2.0	1.7	2.5	1.8	1.3	2.9	1.6	.4	.9	4.8
October	1.6	1.5	2.7	1.4	.8	2.8	1.2	.2	.8	3.4
November	1.2	1.3	2.1	.6	.6	2.3	.5	.3	.7	2.1
December	.8	1.5	.9	.3	.3	.7	.4	.1	.9	1.8(*a*)
December	.9	.7	.4	.9	1.2	.3	.6	.1	2.7	(*b*)

(*a*) Ends in November. (*b*) Data lacking.

winter months, in spite of the abnormally high rate in January.[6]

Miss Bernays found in Germany a similar tendency of terminations to be more frequent in the spring and summer

[6] Too great stress cannot be laid upon the necessity in studying the seasonal variation in the turnover of taking into account the influence upon the seasonal variations of the turnover of the cycles of prosperity and depression. In the latter part of 1909, for example, there was a strong recovery from the depression which had prevailed throughout 1908 and the early part of 1909, resulting in an increased demand for labor and an increase in the turnover. This increase in the turnover occurring in the fall of 1909 tended to offset the decline in the resignation rate which usually occurs with the approach of winter. The strong recovery in the latter part of 1915 had the same effect. On the other hand, in the late fall of 1913, which had been a prosperous year, a strong depres-

months than in the fall and winter. The percentage of all terminations of employment falling in the respective seasons in the Gladbach cotton mill for the three years studied by Miss Bernays was:[7]

	1891	1900	1908
March, April, May	31.7%	30.2%	27.1%
June, July, August	25.9%	26.7%	28.5%
September, October, November	18.8%	26.3(*a*)	25.6%
December, January, February(*b*)	23.6%	16.7%	18.9%

(*a*) The large proportion of quittings in the fall of 1900 was probably due to a change in management occurring in September, 1900.

(*b*) These three months are not consecutive. They are the December, January, and February of the same calendar year in each case.

In the Speyer spinning mill Miss Bernays found the 123 terminations of employment occurring in 1910 distributed as follows:[8]

March, April, May	36.6%
June, July, August	37.7%
September, October, November	10.1%
December, January, February	15.6%

sion set in, resulting in a substantial decrease in turnover rates and accentuating the tendency of resignations to decline with the approach of winter.

Another factor which influences the resignation rate is the hiring of new men. Resignations are exceptionally high among new hands, so that the taking on of a large number of new hands is likely to be reflected temporarily in a higher resignation rate.

[7] "Auslese und Anpassung der Arbeiterschaft der geschlossenen Grossindustrie," *op. cit.*, pp. 35-37. As Miss Bernays' percentage calculations are inaccurate, it was necessary for me to recalculate them for her absolute figures. This accounts for the differences in the percentages given below and those in her book.

[8] "Untersuchungen über die Schwankungen der Arbeitsintensität," *op. cit.*, p. 202.

CHAPTER IV

THE EFFECT OF DIFFERENT FACTORS UPON THE SIZE OF THE TURNOVER (CONTINUED)—THE VARIATION OF THE TURNOVER AMONG DIFFERENT CLASSES OF WORKERS

A turnover of 100 percent may be caused by every position in the establishment being vacated once a year, or by one-tenth of the positions being vacated ten times a year, or one-fourth four times a year, or one-third three times a year.

It is to be expected that some classes of workmen should change more rapidly than others and that therefore the turnover is more or less localized among certain classes of men. It is important in studying the causes of the turnover to know among what classes of men it is largest and to what degree it is concentrated among them.

The turnover is a highly concentrated phenomenon. The high turnover rate in most plants is due to a few men changing rapidly while the great majority of the force is stable. In highly seasonal industries when a large part of the force is laid off at certain seasons of the year, the turnover is of course not so highly localized. The greater the seasonal fluctuations of the business, the less is the localization of the turnover. In general, however, the turnover is concentrated among a relatively small proportion of the force.

Four principal points of concentration of the turnover are found:

1. Among new men.
2. Among certain relatively unattractive jobs.

3. Among common laborers and less skilled men.
4. Among boys and young men and girls.

1. Concentration of the turnover among newly hired men.

The evidence available appears to show that not more than one-third of the men hired by most factories remain in their employ for as long as a year. Two-thirds or more of the men hired leave within a year of being hired. Analysis of the duration of employment of men on the payroll of various factories, on the other hand, shows that in most establishments two-thirds of the men on the payroll have been in the employ of the business for a year or more. There is considerable variation between plants in this respect. In seasonal industries, the proportion of new hands on the payroll is likely to be large, particularly during the rush season. Plants which have recently increased their force also have a large proportion of new men. Plants which have recently reduced their force laying off the new and inexperienced men, have a large proportion of old employees. In general, however, roughly two-thirds or more of the payroll have been employed a year or more.

Table V shows the duration of employment of workmen leaving certain plants, and Table VI shows the duration of service of the men on the payroll of certain plants. Table V shows that in twelve establishments in different industries, *an average of 68.2 percent of all men who left had been employed in the establishment for less than a year.* The average proportion which had been employed two years or more in eight establishments for which figures are available was 19.0 percent.

Table VI shows that in 17 establishments for which figures were available, an average of 30.0 percent of the force had been employed less than a year. The average turnover rate in these plants was 79.2 percent. In other words, *the terminations of employment in these plants averaged nearly*

four-fifths of the average force, but over two-thirds of the men on the payroll had been employed in the plants a year or more, indicating clearly that the turnover is concentrated among a few positions.

Striking confirmation of these results is furnished by the studies of the New York Factory Investigating Commission in the highly seasonal confectionery and paper box industries. Ten confectionery establishments with average forces totaling 953 had on their payrolls, during the course of a year, no less than 3,138 names. In spite of the great instability of employment, 530, or 55.6 percent of the total average forces, were on the payroll of one firm 49 or more weeks during the year.[1] Nine paper box factories, with average forces totaling 792, lost 1,571 employees during the year, a turnover of 198 percent, but 378, or 47.8 percent of the total average forces in these establishments, worked in one establishment during the year, 49 weeks or over.[2]

[1] *Third Report of the Factory Investigating Commission,* p. 89.

[2] *Ibid.,* pp. 131-132.

The study of the duration of service of working forces is an interesting and important subject in regard to which little has been published. The data published appear to corroborate the figures in Table V. The Tariff Board, for example, found that in a group of woolen mills employing 35,029 men, 27.7 percent of the force had been employed less than a year and 72.3 percent a year or more. ("Report on Wool and Manufactures of Wool," 62nd Congress, 2nd Session, *House Document* No. 342, pp. 963-964.) *Bulletin* 208 of the U. S. Bureau of Labor Statistics on "Profit Sharing in the United States," by Mr. Boris Emmet, contains interesting figures from a group of plants in which the workmen are probably unusually stable. On page 30, a plant is mentioned in which from 1901 to 1914 inclusive an average of 46.9 percent of the force had been employed a year or more and 37.2 percent two years and more. On page 36, a plant is mentioned in which 67.6 percent of the force had been employed two years and more. On page 45, figures are given of a plant in which the proportion employed two years or more varied from 49.8 percent to 64.5 percent. A plant mentioned on page 49 had from 88.8 percent to 97.2 percent of

A large Chicago metal working plant which, during the eleven years 1904 to 1914 inclusive, hired 25,267 men, found its manufacturing force employed for six months or more. The proportion of the force employed a year or more in a plant mentioned on pages 55 and 56 ranged from 57.6 percent to 88.0 percent. Fifty-two percent of the employees of a large corporation mentioned on pages 136 and 137 had been employed two years or more.

The following data collected by the writer illustrate the wide variations that exist in the proportions of the force of various durations of employment. These figures were not included in Table V because the size of the turnover of these plants was not known.

Nature of business	Location	Size of force	Average duration of service of force in years	Percentage of force which had been employed for the specified periods							
				Less than 3 mo.	Less than 6 mo.	Less than 1 yr.	2 yrs. and over	3 yrs. and over	5 yrs. and over	10 yrs. and over	15 yrs. and over
								(a)	(b)		(c)
Stoves	St. Louis	335	5.6	.....	.....	.....	76.1	50.5	38.8	20.7	7.5
Foundry	Ohio	1075	.....	32.5	44.6	56.9	34.0	.....	.....	.....	.....
Metal working	Cleveland	1039	.....	.....	.....	65.6	10.3	16.1	10.5	4.3	1.6

(a) Four years and over. (b) Six years and over. (c) Sixteen years and over.

From the files of the *Electric Railway Journal* I have collected data concerning the duration of employment of the trainmen on several street railway systems.

Company	Size of force	Average duration of service of force in years	Percentage of force which had been employed for the specified periods						
			Less than 6 mo.	Less than 1 yr.	2 yrs. and over	3 yrs. and over	4 yrs. and over	5 yrs. and over	8 yrs. and over
Bay State St. Ry. (a) (b)	3,205	7.53	.....	16.3	83.7	68.3	.....	55.2	41.0
Philadelphia Rapid Transit (c)	.....	.....	.....	5.42	87.5	77.4	63.1	47.4	.....
Public Service Railway of N. J. (d)	.....	.....	.....	34.5	.....	.....	.....	.....	.....
Puget Sound Electric Ry. (d)	66	.....	10.6	40.9	40.9	31.8	.....	22.7	.....
Tacoma Ry. & Power Co. (d)	294	.....	32.6	44.5	44.9	30.5	.....	19.2	.....
Pacific Traction Co.	18	.....	5.6	11.2	66.6	55.5	.....	44.4	.....

that 10,961, or 43.4 percent, either resigned or were discharged within the same *calendar* year of being hired. These figures do not include men laid off who were few, nor do they include all the men who left within a year of being employed, but only those who left within the same *calendar* year. Many men hired near the end of the calendar year leave after less than a year's employment, but in the next *calendar* year.

Another Chicago metal working establishment which hired 115 men for certain departments in 1916 found 74, or 64.3 percent, of these men gone at the end of 1916.

The concentration of the turnover among new men is shown also by comparing the rate of turnover among newly hired men with the rate among old hands This is done in Table VII, which shows the proportion of men hired by a number of plants who left before the end of the year and the proportion of men on the payroll at the beginning of the year who left before the end of the year. From three-fifths to nearly nine-tenths of the new men hired left during the calendar year in which they were hired. The rate of change among the new men in most cases is over twice the rate among the old men.

(a) *Electric Railway Journal,* v. XLV, p. 709.
(b) *Ibid.,* v. XLIV, p. 123.
(c) *Ibid.,* v. XL, pp. 819-820.
(d) *Ibid.,* v. XLIV, pp. 300-301.

The length of service of trainmen on the Dallas Consolidated Electric Street Railway is said to have been increased from 26 months in November, 1911, to 46 months in April, 1916. *Electric Railway Journal,* v. XLVII, p. 945.

It is clear that when large increases are not being made in a force the proportion in service for five or more years and the average length of service of the entire force can be increased to and held at high figures.

TABLE V

DURATION OF SERVICE OF WORKMEN LEAVING CERTAIN PLANTS

Nature of business	Location	Number of men leaving	Percent of all men leaving who had been employed for the specified periods									
			Less than 1 wk.	Less than 1 mo.	Less than 3 mo.	Less than 6 mo.	Less than 9 mo.	Less than 1 yr.	Less than 2 yr.	2-3 yrs.	3-5 yrs.	5 yrs. and over
Rubber	Akron, Ohio	2,622	38.2	64.6	87.9	94.4	.....	96.2	.....	.....	.....	.....
Foundry	Cleveland	2,273	.....	66.3	90.2(*a*)	.....	.....	94.0	2.5	1.1	1.4	1.0
Metal working	Chicago	392	.....	.....	73.7	84.2	88.5	91.1	4.5	2.6	1.8	.....
Metal working	Chicago	139	12.2	32.4	59.0(*b*)	77.8(*c*)	83.5(*d*)	83.5	5.0(*e*)	5.1(*f*)	3.7(*g*)	1.4(*h*)
Carpets(*i*)	Philadelphia	.....	12.0	39.0(*j*)	48.0(*k*)	58.0(*l*)	70.0(*m*)	74.0	9.0	5.0	7.0	4.0
Metal working	Milwaukee	814	7.2	17.3	.....	.....	.....	68.9	.....	.....	.....	2.5
Metal working	Chicago	2,491	.....	.....	.....	.....	.....	68.2	11.5	7.6	7.0	5.7
Cameras	New York State	932	.....	11.0	30.0	55.0	.....	65.0	13.0	7.0	8.0	7.0
Paper novelties	Massachusetts	.....	.....	.....	.....	.....	.....	56.0	.....	.....	.....	.....
Silk mill	Connecticut	6,737	.....	.....	.....	.....	.....	51.3	19.3	17.8	11.6(*n*)	.....
Power plant	New York	94	5.3	13.8	22.4	30.9	35.1	38.3	34.0	9.6	8.5	9.6
Gold mine	Black Hills, S. D	1,496	.....	9.4	.....	.....	.....	31.8	39.0	17.9	8.2	3.0

(*a*) Less than 4 months.
(*b*) Less than 3½ months.
(*c*) Less than 6½ months.
(*d*) Less than 9½ months.
(*e*) 1½ years to 2½ years.
(*f*) 2½ years to 3½ years.
(*g*) 3½ years to 5½ years.
(*h*) 5½ years and over.
(*i*) Figures for this plant reported by Mr. J. H. Willits in *Annals of American Academy of Political and Social Science*, v. LXI, p. 130.
(*j*) Less than 5 weeks.
(*k*) Less than 10 weeks.
(*l*) Less than 30 weeks.
(*m*) Less than 40 weeks. The percentage figures given by Mr. Willits add up to only 99 percent.
(*n*) Three years and over.

TABLE VI

DURATION OF SERVICE OF WORKING FORCES OF CERTAIN ESTABLISHMENTS

Nature of business	Location	Size of force	Rate of turn-over	Average duration of service of force in years	Percent of the force which had been employed for the specified periods							
					Less than 3 mo.	Less than 6 mo.	Less than 1 yr.	2 yrs. and over	3 yrs. and over	5 yrs. and over	10 yrs. and over	15 yrs. and over
Soap	New York	481	161%	.....	.....	.....	49.9	.....	.....	.....	.....	.....
Street railway	Alabama	.....	137	.....	.....	.....	58.2	25.5	13.5	6.5	5.5	.....
Shoes	Massachusetts	4,868	124	.....	10.3	14.2	26.2	56.6	41.5	22.6	5.5	.....
Gas engines	Milwaukee	660	120	3.6	.....	10.3	22.7	73.2	.....	27.4	.....	.....
Cotton mill	North Carolina	893	113	.....	.....	.....	31.3	.....	.....	.....	.....	.....
Cement	Illinois	288	111	.....	.....	.....	31.7	.....	.....	.....	.....	.....
Dye works	Delaware	1,437	108	.....	.....	28.4	35.0	53.2	41.9	30.7	16.7	10.0
Wire and cable	Massachusetts	449	94	.....	.....	.....	.....	51.7	.....	.....	.....	.....
Street railway	Minnesota	477	87	.....	.....	.....	28.8	.....	.....	.....	.....	.....
Agricultural implements	Iowa	259	87	.....	.....	.....	.....	.....	.....	43.6	18.5	5.8
Cameras	New York State	312	80	.....	.....	.....	42.6	.....	.....	.....	.....	.....
Metal working	Chicago	560	70	.....	17.5	25.0	29.8	61.6	42.8	29.1	8.9	3.0
Metal working	Chicago	437	57	$2\frac{5}{12}$	18.1	34.5	40.5	50.4	37.5	13.5	1.2	.....
Street railway (*a*)	Alabama	.....	47	.....	.....	.....	23.9	61.3	50.3	27.6	.....	.....
Agricultural implements	Wisconsin	154(*b*)	38	6.4	.....	.....	.....	77.9(*c*)	65.6(*c*)	52.6(*c*)	27.3(*c*)	14.9(*c*)
Drop forgings	New York City	415	30	4.5	4.8	26.6	38.2	47.7	43.4	32.9	17.8	7.4
Printing and binding	Massachusetts	456	28	.....	.4	.8	4.3	90.0	83.6	51.1	20.8	6.6
Paper novelties	Massachusetts	.....	28	.....	.....	.....	20.0	.....	.....	.....	.....	.....
Silk	Connecticut	4,462	26	.....	.....	.....	18.7	.....	.....	47.8	28.0	19.3
Silk	Connecticut	.....	20	.....	.....	.....	8.0	66.0	55.0	30.0	.....	.....

(*a*) This is the same company for which the figures are given in line 2. The figures in line 2 are for 1909, in this line for 1915.
(*b*) Total number of men on payroll during 1915 instead of the number on a particular payroll.
(*c*) Percentages are those which the number of men in service for the respective periods on December 6, 1915, bore to the *total* number of men on the payroll during the year.

TABLE VII

COMPARISON OF THE STABILITY OF NEW AND OLD MEN

Nature of business	Location	Year	Number of men hired during the year	Number of men hired during year who left before end of the year	Percent of new men hired during the year who left before the end of the year	Size of force at beginning of the year	Number of force at beginning of year who left during the year	Percent of force at beginning of year who left before end of year
Agricultural implements		1915-16	1,106	962	87.0	935	53	5.7
	Illinois	1911-12	2,046	1,279	62.5	1,412	557	39.4
Metal working[3]	Chicago	1913	171	123	72.0	61	29	47.6
Cement Co.	Illinois	1914	313	222	71.0	277	80	28.9
Cotton mill.....	Carolina	1915	1,053	743	70.5	948	335	35.3
Street railway..	Minnesota	1914	420	282	67.1	471	132	28.0
Cameras...	N.Y. State	1915	311	178	57.2	260	81	31.2

[3] Figures are for the machine shop only.

These data are confirmed by the experience of a large Chicago metal working plant shown in Table VIII.

TABLE VIII

COMPARISON OF RATE OF RESIGNATION AMONG NEWLY HIRED AND AMONG OLD EMPLOYEES IN A CHICAGO METAL WORKING PLANT, 1908-1914

Year	Number of men hired	Number of men hired who resigned or were discharged in the calendar year in which they were hired	Percent of men hired in respective years who resigned or were discharged in calendar year in which they were hired	Size of force on Jan. 1st	Number of men employed on Jan. 1, who resigned or were discharged within the same year	Percent of men employed on Jan. 1, who left within the year
1908	1,512	435	28.8	3,242	533	16.4
1909	2,374	916	38.6	3,981	636	16.0
1910	2,573	1,083	42.1	4,812	984	20.4
1911	1,568	498	31.8	4,915	950	19.3
1912	2,819	1,143	40.6	4,684	891	19.0
1913	2,239	1,097	49.0	5,342	1,394	26.1
1914	468	122	26.1	5,008	738	14.8

The average percentage of loss among the newly hired men is 36.7 percent; among the men on the payroll at the beginning of each year 18.9 percent.[4]

Miss Bernays found that out of 649 wage earners employed by a Gladbach cotton mill on January 1, 1908, 233, or 35.9 percent, left during the year, but of the 733 new employees hired in the course of the year 44.2 percent had left by the end of the year.[5]

[4] It is obvious that Tables VII and VIII do not show the full difference in the stability of old and new men because the old employees, all being on the payroll at the beginning of the year, have a full year in which to change, whereas the men hired during the year are not exposed to risk of change for a full year.

[5] Marie Bernays, "Auslese und Anpassung der Arbeiterschaft der geschlossenen Groszindustrie," *Schriften des Vereins für Sozialpolitik*, v. CXXXIII, pt. I, pp. 38, 39.

The average duration of employment of 94 men leaving a New York power plant during 1915 was one year ten months, while the average duration of service of the man on the payroll on January 1, 1916, was four years six months. The average duration of service of 139 men leaving a Chicago metal working plant from January 1, 1916, to May 6, 1916, was nine months, while the average duration of employment of 437 men on the payroll on January 22, 1916, was two years five months. In the preceding six months the force had been increased over twenty-five percent, materially reducing the average duration of service per individual.

The longer the duration of employment of a workman in an establishment, the less likely he is to change. The decline in the turnover rate as duration of employment increases is shown in Table IX, which gives the rate of change in the various years of their service of 13,553 men hired from 1908 to 1914 inclusive, by the Chicago metal working plant referred to on page 51. The rate declines consistently as duration of service increases. After the fourth year of service it becomes extremely small.

TABLE IX

DECLINE IN TURNOVER RATE AS DURATION OF SERVICE INCREASES IN A CHICAGO METAL WORKING PLANT

Year of employment	Number remaining at beginning of respective years	Number resigning or discharged during the year [6]	Turnover rate
1	13,553	5,304	39.1%
2	7,066	2,656	37.6%
3	3,751	1,083	28.9%
4	1,925	464	24.1%
5	1,249	212	17.0%
6	687	85	12.4%
7	381	16	4.2%

[6] The reason why the decreases in the number of men at the beginning of each year are greater than the number of men leav-

That the rate of leaving grows less as duration of service increases is indicated by Table X, showing the number of

ing between the two years is that, in order to get the proper basis for calculating the rate of turnover, it was necessary to take not the entire number who had had a given number of years' service but the number *from which the number leaving in the respective years was known.* For example, 13,553 men having been hired in the course of the seven year period and 5,304 having resigned or been discharged during the first year, it is known that at the beginning of the second year not more than 8,249 remain. It is erroneous, however, to compare the number leaving during the second year with the number 8,249. Some of these 8,249 are men hired during 1914. As the number of men leaving subsequent to 1914 is not known, we do not know how many of the men hired in 1914 left during the second year of their employment. In order to obtain a basis for calculating the rate of change during the second year, it is necessary, therefore, to subtract such of the men hired in 1914 as remain at the end of 1914 from the figure 8,249. A similar subtraction is necessary in every case. The number of the men hired in 1913 who quit in their third year of employment is not known, the number hired in 1912 who quit in their fourth year, the number hired in 1911 who quit in their fifth year and so on, although in every instance the number of the men hired in these years who were still in the employ of the company at the beginning of the third, fourth, fifth, etc., years respectively can be ascertained by subtracting the number leaving in previous years from the total hired in the given year.

A second correction is necessary because some of the men hired each year were laid off in the same or in subsequent years. The total number of lay-offs for each year is known, but the years in which the men laid off were hired are not known. As the men laid off are usually the least experienced, it is a safe assumption that the majority of the men laid off were hired in the same calendar year. As it is desired to understate rather than overstate the rapidity of the decline in the turnover rate as duration of employment increases, it was assumed that 75 percent of the lay-offs each year were men hired within the same calendar year—a liberal proportion—that 20 percent were men hired in the preceding calendar year and 5 percent men hired two years previously. The corrections in the bases for calculating the resignation and discharge rates were made in accordance with this assumption. It is be-

employees sharing in the profits of a middle western manufacturer of farm machinery in each year from 1899 to 1914, who left the employ of the company before December 6, 1915. By dividing the number from the group sharing in profits each year who had left before December 6, 1915, by the time elapsed up to December 6, 1915, one obtains the average number of the group leaving per year up to December 6, 1915. Comparing this with the total number in

TABLE X

DECLINE IN RATE OF CHANGE AS DURATION OF SERVICE INCREASES

Year	Number sharing in profits at end of respective years	Number listed in column 2 who had left before Dec. 6, 1915	Average number leaving per year up to Dec. 6, 1915	Average percent of original number leaving per year
1899	34	15	.94	2.8
1900	45	26	1.7	3.8
1901	55	32	2.3	4.2
1902	53	30	2.3	4.3
1903	51	27	2.25	4.4
1904	64	35	3.2	5.0
1905	64	32	3.2	5.0
1906	64	31	3.4	5.3
1907	72	30	3.75	5.2
1908	97	48	6.9	7.1
1909	98	46	7.7	7.9
1910	106	45	9.0	8.5
1911	124	47	11.75	9.5
1912	116	35	11.7	10.1
1913	117	29	14.5	12.4
1914	113	12	12.0	10.6

lieved that this correction tends to understate rather than overstate the rapidity of the decline in the turnover rate for the first two or three years. Beyond the third year it is immaterial what duration of service is assumed for the men laid off, as practically all lay-offs are men of less than two or three years of service.

The number of lay-offs in proportion to the number of hirings was small, being 223 in 1908, 31 in 1909, 305 in 1910, 296 in 1911, 73 in 1912, 188 in 1913, and 27 in 1914.

the group gives the average rate of loss of the group per year. The longer the period elapsed up to December 6, 1915, the smaller is the average rate of loss per year, showing that stability increases as duration of service increases. In order to share in profits, employees must have been employed not less than two years, so that this table shows the rate of loss for employees who had served two years or more.

The proportion of newly hired men who leave after a short period of employment naturally is affected by the demand for labor and the opportunities for obtaining work. In years of depression the proportion of newly hired men who leave after short periods of employment is relatively small, in years of prosperity large. This is illustrated by Table XI showing the proportion of men hired in the respective years who left within the same year in the Chicago metal working establishment referred to above. Note how the rate of leaving is high in years of prosperity

TABLE XI

INFLUENCE OF PROSPERITY AND DEPRESSION UPON THE DURATION OF SERVICE OF NEWLY HIRED MEN

Year	Number hired	Number of men hired in the respective years resigning or discharged in the same calendar year	Percent of men hired in the respective years who resigned or were discharged in the same calendar year
1904	2,722	1,239	45.5
1905	3,125	1,425	45.6
1906	3,288	1,615	49.1
1907	2,579	1,388	53.8
1908	1,512	435	28.8
1909	2,374	916	38.6
1910	2,573	1,083	42.1
1911	1,568	498	31.8
1912	2,819	1,143	40.6
1913	2,239	1,097	49.0
1914	468	122	26.1

Table XII

COMPARISON OF THE DURATION OF SERVICE OF THE MEN ON THE PAYROLL OF A MILWAUKEE GASOLINE ENGINE FACTORY IN DECEMBER, 1913, AND OF THE DURATION OF SERVICE OF THE MEN RESIGNING FROM THE FACTORY BETWEEN JANUARY 1ST AND JULY 1ST, 1913, CLASSIFIED ACCORDING TO THE GRADE AND KIND OF WORK PERFORMED.

A indicates men on the payroll in December, 1913, B the men resigning between January 1st and July 1st, 1913.

Class of labor		Total number	Percent	Duration of Employment: Less than one year		One to five years		Over five years		Average duration of employment in years
				No.	%	No.	%	No.	%	
All classes	A	660	100.0	150	22.7	329	49.9	181	27.4	3.6
	B	814	100.0	561	68.9	233	28.6	20	2.5	1.0
Tradesmen	A	50	100.0	10	20.0	19	38.0	21	42.0	4.5
	B	30	99.9	13	43.3	16	53.3	1	3.3	1.3
Semi-skilled machine hands	A	91	100.0	12	13.2	47	51.6	32	35.2	4.3
better grade (1)	B	150	99.9	97	64.6	52	34.7	1	0.7	1.1
Semi-skilled machine hands	A	87	100.0	16	18.4	47	54.0	24	27.6	3.7
lower grade (2)	B	89	99.9	71	79.8	17	19.1	1	1.1	0.8
Semi-skilled hand workers	A	132	100.0	23	17.4	64	48.5	45	34.1	4.1
better grade (3)	B	102	100.0	61	59.8	32	31.4	9	8.8	1.6
Semi-skilled hand workers	A	100	100.0	18	18.0	58	58.0	24	24.0	3.5
lower grade (4)	B	149	100.0	115	77.2	34	22.8	.....	.....	0.6
Molders	A	54	100.0	27	50.0	17	31.5	10	18.5	2.3
	B	20	100.0	6	30.0	9	45.0	5	25.0	2.6
Foundry	A	54	100.0	22	40.8	20	37.1	12	22.2	2.9
laborers	B	52	100.0	24	46.2	26	50.0	2	3.8	1.3
Common laborers	A	92	100.0	22	23.9	57	62.0	13	14.1	2.8
	B	222	100.0	174	78.4	47	21.2	1	0.4	0.7

(1) Includes lathe, planer, milling machine, boring mill, etc., operators.
(2) Includes helpers, handymen, drill press, and punch press operators.
(3) Includes bench hands, floor hands, erectors, testers.
(4) Includes handymen and helpers.

such as 1905, 1907, 1910, 1912, 1913, and low in 1908 and 1914, years of depression.

The concentration of the turnover among new men is not confined to any particular class of workmen. Regardless of the grade of skill of the workmen, it is the new men who most frequently leave. Table XII shows the results of a study made by the writer of the duration of service of the men on the payroll of a Milwaukee plant and of the men resigning from the plant during a six months' period, classified according to skill.

These data are confirmed by a study of skilled and semi-skilled workers in a Chicago plant. During the year 1916 this plant hired 24 toolmakers of whom 15, or 62.5 percent, left before the end of the year, 35 lathe hands of whom 22, or 62.8 percent, left before the end of the year, 19 bench hands of whom 12, or 63.2 percent, left before the end of the year, and 14 high grade assemblers of whom 9, or 64.3 percent, left before the end of the year.

2. Concentration of the turnover among the less skilled.

Analysis of the turnover rate among different classes of workmen shows that in general there is an inverse relationship between the degree of skill and the rate of turnover. The higher the degree of skill the lower is likely to be the turnover rate. There are exceptions to this rule but in most plants it holds true. Among skilled tradesmen the turnover rarely runs above 50 percent, and indeed in most cases is below 30 percent. Among common laborers, on the other hand, the turnover is rarely below 100 percent and is usually much higher.[7]

[7] By a skilled workman in this and the following discussion is meant a workman of the traditional tradesman type; that is, one who possesses all-round knowledge and who does work which requires an apprenticeship training or the equivalent.

Many of the so called semi-skilled workers do work which re-

Classified statistics would be desirable which would show to what degree the greater turnover among the less skilled is due to the fact that they are more frequently laid off and to what extent due to greater voluntary changing on their part. Although exact data on this point are scarce it is known that both resignations and lay-offs are proportionately greater among the unskilled and slightly skilled than among the more highly skilled. As among all classes of workmen, outside of certain highly seasonal industries, resignations rather than lay-offs are the predominating cause of the turnover among the less skilled.

The following are the turnover rates in certain departments in a Milwaukee gasoline engine factory in which certain classes of workmen predominated:

	1912	1913 (Except December)
Tool and pattern departments (Skilled)	36.9%	27.7%
Five departments employing semi-skilled machine hands	61.9%	72.8%
Five departments employing semi-skilled non-machine hands	51.9%	73.0%
Yard laborers (Common laborers)	179.0%	195.5%

These figures are confirmed by the average duration of service of the respective classes of workmen, which was:

Skilled mechanics	4.5 years
Semi-skilled machine laborers, better grade	4.3 "
Semi-skilled machine laborers, lower grade	3.7 "
Semi-skilled non-machine laborers, better grade	4.0 "
Semi-skilled non-machine laborers, lower grade	3.5 "
Common laborers (except foundry laborers)	2.8 "
Molders	4.3 "
Foundry laborers	2.0 "

quires very great proficiency and many undoubtedly can perform the particular operation which they have learned better than a skilled man. The difference between them and a skilled man is that the skilled worker's knowledge is general,—he is prepared to perform any task in his trade.

The turnover among the different classes of workmen in the machine shop of an eastern street railway was:

Class of workman	Number employed	Number leaving year ending June 1, 1916	Rate of turnover
Skilled.....	27	5	18.5%
Semi-skilled..	16	5	31.2%
Common labor.	8	3	37.5%

An Iowa manufacturer of agricultural implements found that skilled men comprised 35 percent of his force but caused only 19.9 percent of the turnover; that semi-skilled men comprised 42 percent of the force and caused 39.1 percent of the turnover; and that unskilled men comprised 23 percent of the force but caused 41.0 percent of the turnover.

In the year ending September 1, 1917, the skilled, semi-skilled, and unskilled workers constituted substantially the same proportions of the total force. In this year the skilled men caused only 8.5 percent of the turnover, the semi-skilled 29.6 percent, and the unskilled 61.9 percent.

If we assume, as without great inaccuracy we may, that the respective classes of men constituted the same proportions of the average force during these years as they did of the typical payroll, it is possible to calculate the ap-

Class of labor	Average number of employees (estimated). Year ending June 30, 1916	Number leaving during the respective years	Turnover rate
Skilled.....	81.2	53	65.4%
Semi-skilled..	97.4	104	106.8%
Unskilled...	53.3	109	204.5%
Entire Force.	232.0	266	114.6%
	Year ending August 31, 1917		
Skilled.....	71.0	16	22.6%
Semi-skilled..	85.3	56	65.6%
Unskilled....	46.7	117	250.5%
Entire Force.	203.0	189	93.2%

proximate turnover rate for each class. This is done in the table on page 59.

In an eastern shipbuilding plant the rates of turnover in 1915 in departments employing workmen of the respective grades of skill were:

Department	Turnover rate, 1915
PREDOMINATINGLY SKILLED MEN	
Machine shop	14%
Pattern shop	19%
Electricians	32%
Outside machinists	38%
SEMI-SKILLED MEN	
Riveters and calkers	60%
Firemen	126%
COMMON LABORERS	
Outside yard labor	159%
Storeroom lumpers	197%

The turnover in the departments of a Chicago metal working establishment, according to the class of workmen predominating in 1915 was:

Class of workman	Average force	Number leaving	Turnover rate, 1915
PREDOMINATINGLY SKILLED			
Tool room	19.2	9	46.8%
Pattern shop	18.1	2	11.1%
Power plant	3.5	2	57.2%
PREDOMINATINGLY SEMI-SKILLED			
Machine shop	141	227	161.1%
Steel shop	178	227	127.5%
Wood shop	6.4	5	78.2%
Foundry	178	360	202.2%
UNSKILLED			
Yard labor	19.5	161	825.6%
MISCELLANEOUS			
Store room	10.3	....	.....
Shipping	19.5	18	92.3%
Time-keepers and clerks	52	30	57.7%
ENTIRE PLANT	645.5	1,041	161.3%

With the exception of the store room, which had no turnover, and the clerks and time-keepers, the lowest turnovers are found in the skilled departments. Yard laborers had by far the highest turnover. The semi-skilled departments lay between the skilled and unskilled in the size of their turnover rate.

In a second Chicago metal working plant in which the turnover in 1916 was 102.8 percent, the tool room, employing an average of 33 men, lost 26, a turnover of 78.8 percent, and the pattern shop, employing an average of 19.9 men, lost 11, a turnover rate of 55.3 percent. Of the 26 men leaving the tool room, however, 12 were laborers, and of the 11 leaving the pattern shop 2 were laborers. Six departments employing predominantly semi-skilled machine hands or bench hands had an average turnover of 92.1 percent. There was considerable variation between these departments in the rate, in several instances it being less than that in the skilled departments. The rates in these departments were:

Department	Average force employed Jan. 22, 1916 to Jan. 20, 1917	Number leaving Jan. 22, 1916 to Jan. 20, 1917	Turnover rate
Boring mill	21.8	10	45.9%
Lathe	38.6	36	93.3%
Milling machine	25.6	35	136.8%
Drill press	21.8	10	45.9%
Punch press	17.5	14	80.0%
Bench hands	19.0	26	136.9%
Assembly	21.8	22	100.2%
Total	166.2	153	92.1%

The gang of common laborers in this plant, which averaged 43 men, lost during the year 109 men, a turnover rate of 253.5 percent.

The tendency of the turnover to be greater among the

less skilled classes is illustrated by a study made by the writer in the armature department of this factory. The men were divided into three classes, those whose day rate was more than 30 cents per hour, those whose rate was from 25 cents to and including 30 cents per hour, and those whose rate was below 25 cents per hour. The turnover rate among the lowest paid men was very much greater than among the higher paid as the following table shows:

Wage rate	Average force Jan. 22, 1916, to Jan. 20, 1917	Number leaving Jan. 22, 1916, to Jan. 20, 1917	Turnover rate
Over 30c per hour.....	15.6	3	19.2%
From 25c per hour to and including 30c per hour.....	5.0	1	20.0%
Below 25c per hour....	20.5	33	161.0%

Table XIII shows the turnover due to resignations and discharges by classes of workers, in a third Chicago metal working plant. There is a slight error in these figures because it was not known exactly how many of the respective classes of workers were employed in each of the years. A count of a typical payroll in 1913, however, showed that 10 percent of the force consisted of skilled artisans, 24 percent of common laborers, 16 percent of boys under 21, 5.1 percent of girls (nearly all under 21), and 44.9 percent of miscellaneous semi-skilled shop workmen and office workers.[8] No substantial variation has occurred in these proportions. These figures, therefore, were applied to the total average payrolls of the respective years in order to ascertain the approximate average number of each class of

[8] The girls employed in this establishment are factory workers, not office workers. Most of them are employed as core makers. As stated above, the female help consists almost entirely of girls and young women.

TABLE XIII

TURNOVER RATE AMONG DIFFERENT CLASSES OF WORKERS IN A CHICAGO METAL WORKING PLANT

Class of labor	1913			1914			1915			1916		
	Average number employed	Number resigning or discharged	Turnover rate	Average number employed	Number resigning or discharged	Turnover rate	Average number employed	Number resigning or discharged	Turnover rate	Average number employed	Number resigning or discharged	Turnover rate
Tradesmen	520	54	10.4%	478	22	4.6%	479	60	12.5%	599	41	6.8%
Laborers	1,248	1,044	83.6	1,148	256	22.3	1,151	207	18.0	1,439	2,255	156.8
Boys under 21 years	832	775	93.2	765	254	33.2	767	166	21.7	959	1,002	104.5
Girls [a]	265	137	51.7	244	63	25.8	245	91	37.2	306	258	84.3
Miscellaneous semi-skilled and office workers	2,334	481	20.6	2,148	265	12.3	2,153	262	12.2	2,691	565	21.0
Entire plant	5,199	2,491	47.9	4,783	860	18.0	4,795	786	16.4	5,994	4,121	68.8

[a] Nearly all under 21.

workers employed in each year. As the number of artisans has increased somewhat more rapidly than the force as a whole (very substantial additions being made to this class in 1915 and 1916 particularly), the average number actually employed is somewhat greater than the number stated in the table, and the table therefore *overstates* the turnover rate for artisans in the years 1915 and 1916.

In every year the rate among the tradesmen was substantially below the average rate for the entire plant. The rate among the laborers was slightly above the plant average in 1914 and 1915, years of depression, but was far above the plant average in 1913 and 1916. Table XIII tends to indicate that the turnover among the less skilled classes of workers is much more affected by prosperity and depression than the turnover among skilled workers.

The relative stability of skilled, semi-skilled, and unskilled is indicated also by the average duration of service among them.[10] In its report on labor conditions in the iron and steel industry the then Department of Commerce and Labor published the following statistics of the duration of employment according to the degree of skill in a steel mill:[11]

Class of labor	Duration of employment				
	Less than 2 years	From 2 to 5 yrs.	From 5 to 10 yrs.	From 10 to 20 yrs.	Over 20 yrs.
Skilled	2.5%	8.1%	20.9%	43.8%	24.7%
Semi-skilled	8.3	22.3	26.9	8.3	34.2
Common laborers	19.8	30.7	22.7	8.3	18.4

[10] Figures of the average duration of employment of groups of workers are subject to distortion by addition of considerable numbers of new men to increase the force among certain classes of men. This source of distortion must be guarded against in using such figures, just as, in dealing with the relative rates of turnover among different classes of workmen, the distortion of the figures

An examination by the writer of the payroll of a New York drop forge plant showed that the average duration of employment of skilled men was 7.3 years, of semi-skilled men 3.8 years, and of unskilled men 2.7 years. The figures in detail are shown in Table XIV.

The above examples show clearly the wide difference which prevails in the turnover rate among different classes of labor. In the Milwaukee gasoline engine factory, the turnover among the yard laborers was nearly 5 times the turnover in the tool and pattern departments in 1912 and over 7 times the turnover in the tool and pattern departments in 1913. The turnover rate among the common laborers in the street railway shops was twice the rate among skilled tradesmen. In the Iowa implement factory the turnover among the unskilled workers in the first year was more than 3 times, and in the second year more than 11 times the rate among the skilled workers. The store room lumpers in the shipyard had a turnover rate 14 times as large as the machinists', 10 times the pattern makers', 6 times the electricians', and 5 times the outside machinists' rate. The outside labor in the same establishment had a turnover 11 times the machinists', 8 times the pattern makers', nearly 5 times the electricians', and over 4 times the outside machinists' rate. In the first Chicago metal working establishment, the yard laborers, with an average force of 19.5 men, but 3.0 percent of the total force, caused 15.5 percent of the turnover. The turnover rate among these men was 75 times the rate among the pattern makers and nearly 18 times the rate in the tool room. In the second Chicago plant the turnover rate among the common laborers was nearly two and a half times the rate for

by lay-off of large numbers of certain classes of workmen in order to reduce the force must be guarded against.

[11] "Labor Conditions in the Iron and Steel Industry," p. 481; 62nd Congress, 1st session, *Senate Document*, No. 110.

TABLE XIV

DURATION OF EMPLOYMENT ACCORDING TO CLASS OF LABOR IN A NEW YORK DROP FORGE PLANT

Class of labor	Number on payroll	Total years service	Average service in years per individual
SKILLED WORKMEN			
Forgers	42	329.33	7.8
Diesinkers	29	210.50	7.2
Toolmakers	15	81.08	5.4
Machinists	8	49.83	6.2
Polishers	16	167.75	10.6
Miscellaneous skilled	40	253.27	6.3
All skilled men	150	1,093.76	7.3
SEMI-SKILLED WORKMEN			
Forge helpers	33	65.08	2.0
Die room helpers	12	36.77	3.1
Grinders	10	52.50	5.3
Blacksmith helpers	6	12.33	2.1
Milling machine and lathe hands	25	111.67	4.5
Drill press hands	4	1.33	.3
Punch press operators	19	136.58	7.2
Assemblers	9	25.50	2.8
Miscellaneous semi-skilled	10	45.68	4.6
All semi-skilled	128	487.44	3.8
UNSKILLED WORKMEN			
Laborers	40	112.50	2.8
Straighteners	11	24.83	2.3
All unskilled	51	137.33	2.7
MISCELLANEOUS			
Stockroom	43	56.40	1.3
Shipping room	19	31.66	1.7
Drill boys	10	18.33	1.8
Filers (boys)	8	5.5	.7
Watchmen, janitors, sweepers, and elevator men[12]	10	63.77	6.4

[12] This group of men is classed separately rather than included among the semi-skilled or unskilled because the custom of giving positions of this sort to superannuated and incapacitated employees deprives the figures of all comparative value.

the plant as a whole, over 3 times the rate in the tool room, and nearly 5 times the rate in the pattern room, in spite of the fact that the turnover in the tool room and pattern shops was in part (almost half in the tool room) caused by common laborers attached to those departments. In the third Chicago plant the turnover among the laborers in 1916 was 23 times the turnover among the tradesmen.

The difference in the stability of semi-skilled and skilled men is scarcely less striking than the difference between the unskilled and the skilled. In the Milwaukee gasoline engine works the turnover among the semi-skilled machine hands was one and two-thirds as great as in the tool and pattern department in 1912 and nearly two and two-thirds as great in 1913. The rate among the semi-skilled non-machine hands was 37.6 percent greater than the rate of the tool and pattern department in 1912, and two and two-thirds the tool and pattern department's rate in 1913. The semi-skilled workers in the street railway shop changed one and two-thirds times as frequently as the skilled, the semi-skilled workers in the Iowa implement factory nearly one and two-thirds as fast as the skilled workers. In the shipyard the riveters changed over 4 times as fast as the machinists, 3 times as fast as the pattern makers, nearly twice as fast as the electricians, and 58 percent faster than the outside machinists. In the first Chicago metal working plant the turnover in the machine shop was nearly 15 times the turnover in the pattern shop, over 3 times the turnover in the tool room. In the third Chicago metal working plant the turnover among the semi-skilled workers and office force in 1916 was over 3 times the turnover among the tradesmen.

Not only is the turnover rate much higher among the unskilled and semi-skilled workers than among the skilled, but the unskilled and semi-skilled workers constitute a much larger proportion of the force than the skilled workers. The result is that the turnover in by far greater measure is

due to unskilled and semi-skilled workmen and especially to unskilled. Twenty percent of the changes in the Iowa implement factory in the first year and 8.5 percent in the second year were caused by skilled men. Common laborers, however, caused over 40 percent of the turnover in the first year and nearly 62 percent in the second. The first Chicago metal working plant, which lost 1,041 men in 1916, lost only 13 tradesmen—1.25 percent of all losses. The foundry (from which the losses are for the most part common laborers) and the yard laborers alone caused half of the changes—521 out of 1,041. The third Chicago metal working plant lost only 54 tradesmen in 1913, or only 2.2 percent of the total turnover of 2,491. In 1914, 22 tradesmen were lost, or 2.6 percent of the total losses for the year, in 1915, 60 tradesmen were lost, or 7.6 percent of all losses, and in 1916, with total turnover of 4,121, only 41 tradesmen were lost, slightly less than one percent of the total turnover. The turnover in this plant consists almost entirely of laborers and youths and girls who are engaged in simple work and are easy to replace. The following table shows the proportion of the turnover caused by these three classes of help:

Year	Total number of resignations and discharges	Number of resignations and discharges among common laborers, youths and girls	Percentage of resignation and discharge caused by common laborers, youths and girls
1913	2,491	1,956	78.5
1914	860	573	66.7
1915	786	464	59.1
1916	4,121	3,515	85.3

In 1908, 778, or 65.3 percent of a total of 1,191 quittings in this plant, were caused by common laborers, youths, and girls, in 1909, 998, or 63.0 percent of 1,583 quittings, and in the first 28 weeks of 1910, 829, or 51.1 percent of 1,621

quittings. A count of the force in 1913 showed that laborers, youths, and girls constituted only 45.1 percent of the total force.

These results differ decidedly from those obtained by Mr. M. W. Alexander who in an investigation of 12 metal working establishments found the turnover rate among the skilled and the semi-skilled operatives of the higher grade to be greater than the turnover among the laborers and the semi-skilled operatives of the lower grades. Taking the number of employees at the beginning of the year plus half the increase during the year as the base for calculating the turnover (because more nearly approximating the average than the initial number employed) Mr. Alexander's figures give the following results:[13]

Class of labor	Base	Number leaving	Turnover rate
Skilled tradesmen	3,868	4,035	104.2%
Semi-skilled men of higher grade (whose work requires a year or two to acquire an average degree of proficiency)	4,880	5,482	112.3%
Semi-skilled men of lower grade (piece workers, requiring several months to attain average proficiency)	13,836	12,113	87.5%
Laborers	14,230	11,952	84.0%
Clerical force	4,007	2,292	57.2%

On account of the high turnover rate found by Mr. Alexander among the skilled and higher grades of semi-skilled workmen, these classes were responsible for a larger

[13] Data are published in *Annals of American Academy of Political and Social Science*, v. LXV, May 1916, on "Personnel and Employment Problems," p. 136. Slightly different figures are given by Mr. Alexander in his address on the same subject printed in *Proceedings of the National Machine Tool Builders' Association*, 1914.

share of the turnover than in most plants studied by the writer. Nevertheless, the total portion of the turnover caused by these classes in the plants studied by Mr. Alexander was not large. Skilled workers caused only 11.2 percent of all terminations of employment, and semi-skilled men of the higher grades 15.3 percent, compared with 33.7 percent for semi-skilled men of the lower grade and 33.3 percent for laborers. The clerical force caused 6.4 percent.

The proportion of the turnover caused by the respective classes of workers is of course of vital importance in considering the cost of the turnover.

The meager data on the situation in Germany indicate that the simple inverse relationship between skill and stability does not prevail there. The great variation in the relative stability of the different classes of help in different establishments indicates the complexity of the forces determining stability. In the Gladbach cotton mill investigated by Miss Bernays the relative stability of different classes of workers in the order from most to least stable was: artisans (factory repair force), dressers, yard laborers, spinners, weavers, and unskilled machine hands.[14]

Miss Bernays interprets the relative stability of the different classes in the light of two principal factors—the cultural level of the workers and the character of their work. The lower the intelligence and standard of living of the workers, the greater is their instability. This is illustrated by the unskilled machine hands, the "proletariat" of the plant who are the most unstable of all, by the yard

[14] Marie Bernays, "Auslese und Anpassung der Arbeiterschaft der geschlossenen Groszindustrie," *Schriften des Vereins für Sozialpolitik*, v. CXXXV, pt. III, p. 59.

Miss Bernays applies the term "Mischungsarbeiter" not to the mixers proper only, of whom there are very few, but to all unskilled machine hands, such as pickers and carders. See her footnote No. 4, on her p. 15.

laborers who are relatively unstable, and by the artisans, the "aristocracy" of the plant who are the most stable of all. Miss Bernays explains the high degree of instability among the weavers and spinners, who are also to be reckoned in the "aristocracy" of the plant, by the highly monotonous character of their work. Frequent change from place to place is a means of compensation for the tediousness of repetitive work sought by workers possessing a relatively highly developed inner life.[15]

In a Speyer spinning mill investigated by Miss Bernays the relative stability of the different classes in order from most to least stable was: artisans, unskilled machine hands, spinners, yard laborers.[16]

In several other establishments a very different relationship between skill and stability prevailed. Schumann in his study of the workers of the Daimler Motor Company collected the histories of the workers, obtaining a record of the number of positions held and the duration of employment in each position. His figures indicate that the skilled men are more unstable than the unskilled. The average length of service in positions previously held by men receiving less than the average wage in the plant was 2 years, 2½ months, the average duration of service in previous positions of men receiving more than the average wage in the plant was 1 year, 8½ months.[17] The average duration of service in previous positions by occupations is shown in the table on page 72.[18]

Von Bieńkowski found a similar relationship in the stability of various classes of help in a cable factory—the least

[15] *Ibid.*, pp. 59-61.

[16] Marie Bernays, "Untersuchungen über die Schwankungen der Arbeitsintensität," *Schriften des Vereins für Sozialpolitik*, v. CXXXV, pt. III, p. 204.

[17] Schumann, "Die Arbeiter der Daimler Motoren Gesellschaft," *Schriften des Vereins für Sozialpolitik*, v. CXXXV, pt. I, p. 130.

[18] *Ibid.*, pp. 44 and 131.

stable being the skilled, the next least stable the common laborers, and the most stable the semi-skilled workers.[19] Von Bieńkowski attributes the great instability of the skilled workers to their opportunities to become foremen or inde-

Class of workmen	Average daily wage received in Daimler works in marks	Average length of service in each previous position in years
Common laborers	3.77	2.9
Machine hands (semi-skilled)	4.56	4.6
Machine molders (semi-skilled)	....	2.1
Coppersmiths (skilled)	4.94	2.0
Turners (skilled)	5.22	1.7
Toolmakers (skilled)	4.93	1.5
Smiths (skilled)	4.91	1.5

pendent masters and to the fact that because of their greater intelligence they demand pleasure and satisfaction in their work itself and for this reason are willing to give up their jobs to seek more congenial work or surroundings.[20] The unskilled laborers are stable because less critical and more easily satisfied. Von Bieńkowski offers no explanation of the maximum stability of the semi-skilled.

Keck, in a study of a pottery works at Friederichsfeld near Mannheim found the most "aristocratic" class—the repair force, smiths, machinists, turners, masons, and certain hand workers such as joiners and modelers—and the "proletariat" of the plant, the common laborers, to be the least stable of all. The potters who stood next to the repair force and hand workers in skill were the most stable, the semi-skilled workers occupied an intermediate position.[21]

[19] Von Bieńkowski, "Untersuchungen über Arbeitseignung und Leitungsfähigkeit der Arbeiterschaft einer Kabelfabrik," *Schriften des Vereins für Sozialpolitik,* v. CXXXIV, pt. II, p. 18.

[20] *Ibid.,* p. 20.

[21] Keck, "Das Berufsschicksal der Arbeiterschaft in einer badischen Steinzeugwarenfabrik,'' *Schriften des Vereins für Sozialpolitik,* v. CXXXV, Part III, Table VI, pp. 174-175, and Table XVI, p. 177.

The German data are too meager and too conflicting to warrant generalization concerning the relative stability of different classes of labor in Germany. The differences in the situations of skilled and unskilled labor in Germany and America, however, are so great that we may very well expect a difference in their relative stability in the two countries. In America there is great variation in the working conditions of skilled and unskilled men, but there is less variation in their opportunities for advancement. The unskilled man in America has relatively good opportunities to get a better job. In Germany there is less difference between the working conditions of the skilled and unskilled men. On account of the relatively greater abundance of skilled workers, the German skilled men are treated little better than are common laborers. The wages of skilled men are much lower in relation to the wages of the unskilled in Germany than in America. On the other hand the opportunities of the unskilled and semi-skilled men to obtain better jobs are much less compared with the opportunities of the skilled in Germany than in America.

In America where the main variation is in working conditions, the skilled men are stable because their working conditions are good. Because working conditions of the unskilled and semi-skilled men are in many cases unsatisfactory and opportunities to better their condition fairly abundant, there is considerable changing among these classes to take advantage of the chances to improve their condition. In Germany, on the other hand, where skilled men are affected by unsatisfactory working conditions almost as much as the semi-skilled and unskilled, because their skill and all around ability renders it easiest for them to secure new jobs when dissatisfied, the skilled men may be the most unstable of all. The semi-skilled, as some of the data suggest, may prove in Germany the most stable of all because, on account of the specialized character of semi-

skilled work and their narrow training, they find it especially difficult to secure a new job as attractive as their old one.

3. Localization of the turnover among less desirable jobs.

Every enterprise has few or many jobs which, because of the inherent character of the work or the rate of pay or other conditions, are unattractive. The work may be extremely heavy and fatiguing, it may involve great nervous strain, it may be exceptionally monotonous, it may be unusually dirty, it may expose the worker to great heat, dust, fumes, smoke, or nauseating odors, it may be wet, or it may be night work all or in part. In piece work shops there are usually certain jobs on which the rate has been cut too low, which have been "killed" as the workmen say, on which it is impossible to make a fair wage.

Foundries offer perhaps the most common example of work at which it is difficult to hold men. The work is hot, heavy, and dirty. Almost innumerable other examples can be given. The steel industry, laundries, power plants, forge shops, aluminum reduction, the enameled ware industry, all have numerous jobs in which exposure to great heat is inevitable and report difficulty in holding help on that account. A rubber shoe plant reports difficulty in holding help in its milling department, where the rubber is compounded, ground, and worked into stock, on account of the hard, dirty, hot character of the work. Dye plants report that the wet, heat, steam, and dirt of the dye house make it difficult to hold men. Copper mines find a large turnover among the "trammers," who do the heavy work of loading the loosened material into the cars and who often work under conditions of considerable heat. A manufacturer of office furniture finds difficulty in holding help in the plating room, where nickel plating is done, on account of the heat. Sand blasting in foundries where the workman is severely exposed to dust has been proverbially difficult work at which

to hold men. A manufacturer of adding machines has particular difficulty in holding men in the cleaning department where it is necessary for the men to work with gasoline. A manufacturer of furniture has difficulty in holding men in the varnishing department because it is difficult for men to become used to the odor. A piano manufacturer found difficulty in holding varnishers' helpers on account of the smell, the dirt, and the heavy character of the work. Meat packing offers many examples of dirty, disagreeable jobs at which it is hard to hold men. A camera manufacturer reports large losses among female help due to dislike of working in the dark room.

The number of unattractive jobs in a shop may be very small but a few such jobs will cause a surprising number of changes. The employment manager of a middle western shoe factory tells me of four positions all involving the same work, for which he hired 48 men within three months. The work was cutting heel lifts with a mallet and die. This work is now done in this factory by a machine. The work was heavy and men complained of sore arms. Moreover it was underpaid. Nine dollars a week was about the average earnings of the men and some could not make more than eight.

A Chicago metal working plant, with a turnover in 1916 of 102.8 percent, lost 44 men from a small brass foundry employing an average of 9 men, a turnover of 488.9 percent. A second Chicago metal working plant, with a turnover of 161 percent in 1916, had a turnover in its foundry of 202.2 percent.

A manufacturer of transmission machinery, who had a turnover for the entire plant of 56 percent in 1914, had a turnover of over 400 percent in his foundry.

A Cleveland foundry found that out of 2,273 men leaving, *1,506, or 66.3 percent, had worked less than 30 days and 2,050, or 90.2 percent, less than four months.* Another

western plant, which has made a remarkable record in holding down its turnover and which, for the four years from 1913 to 1916 inclusive, had an average turnover rate of 40.5 percent, reports great difficulty in holding men in the foundry. "While we have done all that is humanly possible to make conditions less severe," writes the employment manager, "the foundry will, by nature of the work necessary to be performed, prove less inviting than the shop." A western farm implement manufacturer with a turnover of 93.7 percent for the entire plant had a turnover of 115.7 percent in the foundry.

Hot jobs cause numerous changes. A Detroit factory was mentioned in the preceding chapter which had a turnover of 83 percent in its forge shop in the hot month of July, 1916. The employment manager of another Detroit plant states that two or three out of every ten laborers hired for their heat treating room, where men work among furnaces heated from 600 to 2,000 degrees, quit within several hours, two or three more within several days, and that at the end of the month not more than two or three out of ten hired will be left.

Yard work on account of its heavy character and because of the low wages causes large turnovers. A New York piano manufacturer who employed a yard force of 13 men lost 12 in the single month of June, 1916. Of the 12 who left, 1 had worked 1 day, 6 had worked 1 week, 2 two weeks, 1 two months, 1 seven months, and 1 two years and six months. The work was heavy, handling lumber. The wages were only $10 per week.

4. Concentration of the turnover among boys, young men, and girls.

The turnover rate in general is decidedly higher among boys, young men, and girls than among workmen in general. This is illustrated by the experience of the Chicago metal working plant shown in Table XIII. The percentage of

resignations and discharges to the average force for the entire plant and for the youths and girls from 1913 to 1916 inclusive was as follows:[22]

Year	Entire plant	Youths	Girls
1913	47.9%	93.2%	51.7%
1914	18.0	33.2	25.8
1915	16.4	21.7	37.2
1916	68.8	104.5	84.3

At the 1915 convention of the National Association of Corporation Schools, Mr. L. Atherton, who was then in charge of the office and messenger boys of Swift and Company, stated that during the nine years preceding his connection with the company it had employed 1,350 boys, whose average duration of service was 3.6 months.[23]

The rapid changing among children is most strikingly shown by data collected by the Bureau of Vocational Guidance of the Chicago Public Schools. These children were mostly between 14 and 16 years of age. The bureau found that 1,082 boys *none of whom had been at work for over a year, and more than half of whom had been at work less than 6 months, had made 1,240 changes of employer since entering industrial employment.* Three hundred and fifteen of these boys had been in industrial employment less than three months but in that time had made 199 changes. Three hundred and twelve who had been in industrial employment

[22] The exact number of youths and girls on the payroll in the respective years was not known. A count made in 1913 showed that 16 percent of the force in this plant were boys and young men under 21 years of age and 5.1 percent of the force girls nearly all under 21. The average number of youths and girls employed for each year was estimated by taking 16 percent and 5.1 percent of the average force. As the proportion of youths and girls remained substantially constant these estimates are sufficiently accurate.

[23] *Proceedings of the National Association of Corporation Schools,* 1915, pp. 438-439.

from three to six months had made 364 changes, 274 who had been in industrial employment from six to nine months had made 371 changes, and 181 who had been at work from nine months to one year had made 298 changes. The average number of jobs held per boy by those who had been at work less than three months was 1.63 jobs, by those who had been at work from three to six months 2.17 jobs, by those who had been at work from six to nine months 2.38 jobs, by those who had been at work from nine months to one year 2.65 jobs.[24]

The Bureau found that 1,070 girls, none of whom had been in industrial employment for more than a year, had made 1,078 changes. Three hundred sixty-nine of these girls had been at work for less than three months but in that time had made 205 changes, 278 had been at work from three months to six months and had made 275 changes, 260 had been at work from six to nine months and had made 324 changes, and 163 had been at work from nine months to a year and had made 274 changes.[25] The average number of jobs held per girl by those who had been at work less than three months was 1.55, by those who had been at work from three to six months 1.99, by those who had been at work from six to nine months 2.25, by those who had been at work from nine months to a year 2.68.

Table XV shows the time at work and the number of jobs held by these groups of boys and girls.

The instability of boys and girls is further indicated by the time spent at their first position upon entering industry. The Bureau of Vocational Guidance of the Chicago Public Schools collected data in regard to this point from 3,679 boys and girls. Of these 3,679 children, 967, or 26.3 per-

[24] Based on data given in *Report of Bureau of Vocational Guidance, Chicago Public Schools*, 1916, p. 33.

[25] *Ibid.*, p. 33.

TABLE XV

TIME AT WORK AND NUMBER OF JOBS HELD BY 2,152 CHICAGO CHILDREN.[26]

No. of jobs held	All periods	Percent	Less than 3 mo.	Percent	3 to 6 mo.	Percent	6 to 9 mo.	Percent	9 mo. to 1 yr.	Percent
					1082 Boys					
1	441	40.7	183	58.1	120	38.5	92	33.6	46	25.4
2	296	27.4	82	26.1	95	30.4	72	26.3	47	26.0
3	191	17.6	35	11.1	55	17.6	58	21.2	43	23.8
4	86	7.9	13	4.1	23	7.4	28	10.2	22	12.2
5	44	4.1	2	.6	11	3.5	15	5.5	16	8.8
6	19	1.8	.....	.....	5	1.6	7	2.6	7	3.9
7	3	.3	.....	.....	1	.3	2	.7	.....	.....
8	1	.1	.....	.....	1	.3	.....	.....	.....	.....
9	1	.1	.....	.....	1	.3	.....	.....	.....	.....
Total....	1,082	100.0	315	100.0	312	99.9	274	100.1	181	100.1
					1070 Girls					
1	472	44.1	224	60.7	117	42.1	97	31.3	34	20.0
2	300	28.0	102	27.6	82	29.5	66	25.4	50	30.7
3	182	17.0	30	8.1	52	18.7	58	22.3	42	25.8
4	71	6.6	10	2.7	19	6.7	22	8.5	20	12.3
5	33	3.1	2	.5	8	2.9	11	4.2	12	7.4
6	8	.7	1	.3	.....	.....	5	1.9	2	1.2
7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
8	3	.3	.....	.....	.....	.....	1	.4	2	1.2
9	1	.1	.....	.....	.....	.....	.....	.....	1	.6
Total....	1,070	99.9	369	99.9	278	99.9	260	100.0	163	100.0

[26] Based on data in *Report of Bureau of Vocational Guidance, Chicago Public Schools*, 1916, Tables 12 and 13, p. 33.

cent, left their first job within *one* month, 1,388, or 37.7 percent, within *two* months, 1,684, or 45.8 percent, within *three* months. More than half (52.0 percent) of the children left their first position within *four* months of being employed. Two thousand and sixty, or 61.5 percent, left within six months of being employed and 2,720 or nearly three-fourths (74.1 percent) left within a year of being employed.[27] Table XVI gives the details.

TABLE XVI

TIME SPENT AT FIRST POSITION BY 3,679 CHILDREN[28]

Duration of employment at first position	All Children				
	Number leaving first position	Percent of number leaving to total	Number leaving (cumulative)	Percent of number leaving to all (cumulative)	Number still in first position
All months	2,920	79.4	2,920	79.4	759
1 month	967	26.3	967	26.3	141
2 months	421	11.4	1,388	37.7	63
3 months	296	8.1	1,684	45.8	55
4 months	229	6.2	1,913	52.0	47
5 months	129	3.5	2,042	55.5	56
6 months	220	6.0	2,262	61.5	56
7 months	81	2.2	2,343	63.7	35
8 months	91	2.5	2,434	66.2	41
9 months	61	1.7	2,495	67.9	30
10 months	35	1.0	2,530	68.9	19
11 months	24	.7	2,554	69.6	11
12 months	166	4.5	2,720	74.1	57
12-15 months	26	.7	2,746	74.8	17
15-18 months	27	1.7	2,773	75.5	35
18-21 months	64	2.7	2,837	77.2	38
21-24 months	8	2.2	2,845	77.4	5
24 months and over	75	2.0	2,920	79.4	43

[27] Based on data in *Report of Bureau of Vocational Guidance, Chicago Public Schools*, 1916, p. 36.

[28] *Ibid.*

The rate of change among the children studied by the Bureau is exceptionally high because most of the children were below 16 years of age and because the Bureau's study deals with children during their first several years in industry. Young children and those just entering industry are peculiarly unstable because they find the work harder than older children, because the routine and monotony of work weigh on them more than on older and more experienced children, because several changes are often necessary before a child finds work which he likes, because younger and less experienced children are more likely to prove unsatisfactory to their employer and are discharged, and because they are more likely than older children to be laid off since there are fewer things which they can do.

Data collected by the Chicago Bureau of Vocational Guidance indicate that the instability of children decreases as their industrial experience increases. The Bureau gives

TABLE XVII

RATE OF CHANGE OF EMPLOYER AMONG 1,834 BOYS [29]

Duration of employment in industry	Number	Estimated total years in industry	Changes made since entering industry	Rate of change per year
Less than 3 months	315	39	199	5.1
3 to 6 months.....	312	117	364	3.1
6 to 9 months.....	274	171	379	2.2
9 to 12 months....	181	158	298	1.9
12 to 15 months...	211	237	361	1.5
15 to 18 months...	131	180	281	1.6
18 to 21 months...	110	179	284	1.6
21 to 24 months...	73	135	232	1.7
2 to 3 years.....	181	453	437	1.0
3 to 4 years.....	31	109	107	1.0
4 to 5 years.....	8	36	26	.7
5 to 6 years	7	38.5	21	.5

[29] Based on data in Tables 12 and 13 of *Report of Bureau of Vocational Guidance, Chicago Public Schools,* 1916, p. 33.

figures showing the number of children engaged in industry for less than three months, from three to six months, and so on by quarterly periods up to two years and by annual periods above two years, and the number of jobs held by the children in each group. From these figures it is possible to calculate the average rate of change per annum. It was assumed that the average time since entering industry of the children who had been in industry less than three months was a month and a half, of the children who had been in industry from three to six months, four months and a half, etc. The total number of years in industry for each group estimated by this method, divided into the number of changes of employer gives the *rate* of change of employer per year. Tables XVII and XVIII give the results.

That stability increases as industrial experience increases is indicated also by data relating to Massachusetts Trade

TABLE XVIII

RATE OF CHANGE OF EMPLOYER AMONG 1,616 GIRLS[30]

Duration of employment in industry	Number	Estimated total years in industry	Changes made since entering industry	Rate of change per year
Less than 3 months	369	46	205	4.5
3 to 6 months.....	278	104	275	2.6
6 to 9 months	260	163	324	2.0
9 to 12 months ...	163	143	274	1.9
12 to 15 months...	148	166	264	1.6
15 to 18 months ..	96	132	183	1.4
18 to 21 months ..	92	121	154	1.3
21 to 24 months...	40	75	92	1.2
2 to 3 years.....	131	327	293	.9
3 to 4 years.....	29	102	76	.7
4 to 5 years.....	9	41	34	.8
5 to 6 years	1	5.5	1	.2

[30] Based on data in Tables 12 and 13 of *Report of Bureau of Vocational Guidance, Chicago Public Schools*, 1916, p. 33.

School girls, published by the Bureau of Labor Statistics.[31] The following figures are calculated from Table 52 of the Bureau's study, showing the changes of employer made by 727 girls entering the sewing trades. In calculating the total years' service of these girls in the sewing trades, it was assumed that the average length of service of the girls engaged in the trades for less than one year was six months, of these engaged in the trades one to two years was one and a half years, etc. The average duration of service of those engaged in the trades for eight years or more was arbitrarily assumed to be 9 years—a conservative estimate. The average number of changes of employer per year of service calculated in this manner consistently declines as duration of experience in the trades increases.

TABLE XIX

RATE OF CHANGE OF EMPLOYER OF 727 BOSTON TRADE SCHOOL GIRLS ACCORDING TO LENGTH OF EMPLOYMENT IN SEWING TRADES

Duration of experience in the sewing trades	Number	Estimated total years in the sewing trades	Total changes of employer since entering the sewing trades	Average number of changes of employer per year in the sewing trades
Less than 1 year...	107	53.5	91	1.70
1 to 2 years.....	120	180.0	142	.79
2 to 3 years.....	99	247.5	152	.61
3 to 4 years.....	100	350.0	200	.57
4 to 5 years	94	423.0	190	.45
5 to 6 years.....	78	429.0	167	.39
6 to 7 years.....	48	312.0	119	.38
7 to 8 years	32	240.0	76	.32
8 years and over ..	44	396.0	99	.25

It is not invariably true, however, that youths and girls show a higher rate of turnover than adults. The subjoined figures from an eastern silk mill showing the average rate

[31] "Industrial Experience of Trade School Girls in Massachusetts," U. S. Bureau of Labor Statistics, *Bulletin* No. 215, p. 89.

of turnover according to age for the six years 1908 to 1913 inclusive show the rate is highest between the ages 21 to 24 inclusive. The reason for this probably is that the mill was located in a small town where it was practically the only industry. For the young people to change jobs meant in most cases that they must leave home, which they were less able and inclined to do than those slightly older.

Age	Average number of employees 1908-1913 [32]	Average number leaving annually 1908-1913 inc.	Average annual turnover rate 1908-1913 inc.
15 up to 21 years.....	385	121	31.4%
21 up to 25 years.....	321	108	33.7%
25 up to 30 years.....	350	98	28.0%
30 up to 35 years.....	251	53	21.1%
35 up to 40 years.....	218	43	19.7%

5. The relative stability of men and women.

I have been unable to obtain satisfactory data concerning the relative stability of men and women. Statistics obtained from a number of plants are without significance because the men and women are engaged in entirely different work.

[32] The number of employees within each age class on January 1st of each year was averaged in order to obtain the figures in this column.

CHAPTER V

THE NUMERICAL IMPORTANCE OF RESIGNATIONS, LAY-OFFS, DISCHARGES, AND MISCELLANEOUS CAUSES OF THE TURNOVER

1. The relative frequency of resignations and lay-offs. Resignations constitute the most frequent source of terminations of employment, and lay-offs the second most frequent source.[1] The belief, if there is one, that the instability of labor is primarily due to fluctuations in the volume of work is not true of industry as a whole.[2]

[1] The figures given in this section concerning the number of resignations and their frequency compared with lay-offs, include resignations which do not occur at the volition of the worker, such as sickness, disability, being needed at home, etc., which properly should be separated from resignations due to the worker's volition and classified as miscellaneous causes of the turnover. As these causes of turnover were not separated by the plants studied, they are inevitably included in the figures given for resignations. The number of terminations of employment due to these causes is not sufficient to change the conclusions concerning the relative importance of resignations due to the worker's volition and lay-offs due to lack of work as causes of the turnover.

[2] It cannot be denied that unsteady work has important *indirect* effects upon the turnover in addition to its direct effects, by creating the habit of floating. It is also true, as was pointed out in Chapter I, that the direct effect of unsteady work is not adequately measured by lay-offs, since failure to obtain enough work to make a fair day's wage causes piece workers to leave of their own volition. The difference between the number of resignations and the number of lay-offs in non-seasonal industries, however, is so great that it seems clear that resignations are *directly* responsible for a far larger share of the turnover than lay-offs.

The relative importance of resignations and lay-offs varies greatly from industry to industry. In highly seasonal industries the proportion of lay-offs is large. This is illustrated by the following figures, indicating the proportion of the turnover attributable to the various causes in six plants in seasonal industries:[3]

	Resignations	Lay-offs	Discharges
Sugar beet factory.....	13%	83%	4%
Sugar beet factory.....	14%	74%	11%
Sugar beet factory.....	24%	59%	17%
Sugar beet factory.....	10%	87%	3%
Ship Yard.....	9%	89%	2%
Ship Yard.....	20%	75%	5%

In general, however, resignations are more numerous than lay-offs. Data collected by the writer for the Commission on Industrial Relations from 78 factories, mines, and stores with a total turnover of 142,069, show that resignations caused 70,391 terminations of employment, lay-offs 54,715. Resignations constituted 49.0 percent of the turnover in these establishments, lay-offs 38.5 percent. The remaining 16,963 terminations of employment were due to discharges. Among these 78 plants the resignations exceeded the lay-offs in 48 plants, the lay-offs exceeded the resignations in 30 plants. In 37 plants the resignations constituted fifty percent or more of the total turnover in the plant, in 23 plants lay-offs constituted 50 percent or more of the total turnover in the plant. Table XX classifies these 78 establishments according to the proportion of the turnover in each caused by resignations and lay-offs.

These data are confirmed by figures collected by the writer from 33 plants in different industries, which show that out of a total of 28,105 terminations of employment

[3] Data collected by the writer for the United States Commission on Industrial Relations.

TABLE XX

PERCENTAGE OF TURNOVER CAUSED BY RESIGNATIONS AND LAY-OFFS IN 78 ESTABLISHMENTS

Percentage of total turnover due to respective causes	Resignations			Lay-offs		
	Number of establishments	Percent	Cumulative percentages	Number of establishments	Percent	Cumulative percentages
80% to 100%	15	19.2	19.2	3	3.8	3.8
70% to 80%	8	10.2	29.4	6	7.7	11.5
60% to 70%	4	6.4	35.8	8	10.3	21.8
50% to 60%	10	12.8	48.6	6	7.7	29.5
40% to 50%	12	15.4	64.0	11	14.1	43.6
30% to 40%	9	11.5	75.5	12	15.4	59.0
20% to 30%	15	19.2	94.7	4	5.1	64.1
Below 20%	5	6.4	100.1	28	35.9	100.0
Total.....	78	100.1		78	100.0	

21,934, or 78.0 percent, were due to resignations, 2,679, or 9.5 per cent, to lay-offs, 3,382, or 12.0 percent, to discharges and 120, or 0.4 percent, to miscellaneous reasons. These figures are for various years.[4] Where data were available from a single establishment for several years the average was taken. The proportion of lay-offs in this group is probably considerably below the normal in spite of the fact that the establishments were from different industries and the data were for different years.

Data on the turnover among railroad employees collected by the writer for the Commission on Industrial Relations also show that resignations in general are more numerous than lay-offs.

[4] The years for which the figures were taken and the number of plants from which figures were available for each year are as follows: 1911, 2 establishments; 1912, 5 establishments; 1913, 9 establishments; 1914, 23 establishments; 1915, 9 establishments; 1915-1916 (year ending June 30, 1917), 3 establishments; 1916, 4 establishments.

TABLE XXI

Occupations	Number of roads reporting	Total number of terminations of employment	Number of resignations	Percent of total turnover	Number of lay-offs	Percent of total turnover
Engineers and conductors	10	479	100	20.9	254	53.0
Firemen and brakemen	10	6,334	3,146	49.7	1,561	24.7
Maintenance of equipment	14	61,313	30,175	49.2	6,384	10.4
Maintenance of way and structures	14	114,357	56,431	49.3	51,984	45.4
Station agents, station men, and telegraphers	10	14,053	10,522	74.9	2,476	17.6

The most interesting feature of these figures is that even among the maintenance of way and structure employees who are largely composed of section men and other laborers whose work is highly seasonal or temporary, the resignations exceed the lay-offs. One reason for this is that, in view of the heavy character of the work, the wages customarily paid are too low to hold men. The section forces are constantly being depleted by the men leaving to work upon construction jobs or to work in the harvests at higher rates. A second reason is that, on account of the temporary character of the work and the low rate of pay, men who desire steady employment and who are able to get it will not take this sort. It is, therefore, largely done by habitual drifters who are even more temporary than the work. This applies to the construction gangs and track laying gangs more than to the regular section gangs.

Lay-offs are particularly frequent among children and

especially among younger children. The reason given for leaving their first position in industry by 2,925 children, as ascertained by the Bureau of Vocational Guidance of the Chicago Public Schools, was "laid-off" in 1,201 cases, or 41.1 percent of the total.[5] Resignation due to volition of the worker (that is, excluding such causes as sickness, needed at home, although this probably was frequently a fictitious reason, strike, injured, etc.) caused termination of the first employment in 1284 cases or 43.9 percent,—only a slightly larger proportion than the terminations due to lay-offs.[6]

[5] *Report of Bureau of Vocational Guidance, Chicago Public Schools,* 1916, p. 37.

[6] The large proportion of lay-offs among children is due principally to the seasonal nature of the industries in which they are largely employed and to their employment at short time temporary jobs to help out in rush seasons.

The Illinois factory inspectors found during the year ending June 30, 1915, 4,854 children under 16 employed in 21,486 establishments. Nine industries, however, nearly all of which are highly seasonal, employed 52.08 percent of these children. The nine industries were: department stores, printing, confectionery, metal trades, soaps and washing powders, telegraph and telephone, boot and hose, paper boxes, clothing. (*Report of Bureau of Vocational Guidance, Chicago Public Schools,* 1916, p. 26.)

Children are needed, when a sudden rush of business occurs, as office and messenger help and for such work as counting, sorting, wrapping, folding, inserting, and packing. When the rush subsides, on account of their youth and inexperience, there is nothing for them to do. They cannot be used as can older workers to fill vacancies in the force caused by resignations and discharges. Lay-off is the only alternative.

Lay-offs were found by the Bureau to be more numerous among girls than among boys. Half of the girls (50.9 percent) lost their first positions on account of lay-off compared with less than one-third of the boys (32.3 percent). (*Report of Bureau of Vocational Guidance, Chicago Public Schools,* 1916, p. 37.) This difference is due probably to the more seasonal work in which the girls find employment and also to the fact that boys are more inclined

2. The numerical importance of discharge.

Discharges in most establishments are fewer than either resignations or lay-offs. The 78 establishments from which the writer collected figures for the United States Commission on Industrial Relations, with a total turnover of 142,069, lost 16,963 men on account of discharge compared

Percentage of discharges to total turnover	Number of plants in which discharges were the specified percentages of the total turnover	Percent of all plants
Less than 5%	21	26.9
5% to 10%	14	17.9
10% to 15%	16	20.5
15% to 20%	13	16.7
20% to 25%	5	6.4
25% to 30%	5	6.4
30% to 40%	1	1.3
40% to 50%	2	2.6
50% and over	1	1.3
Total.....	78	100.0

with 70,391 on account of resignation and 54,715 on account of lay-off. Discharges constituted 11.9 per cent. of all terminations of employment in these establishments. The table above classifies these 78 establishments according to the percentage of the turnover caused by discharges.

The proportion of the turnover caused by discharges

than girls to give up their positions on their own initiative. Girls are employed in stores, in printing establishments and mail order houses to assist in getting out circulars and catalogues (all intermittent work), in the highly seasonal millinery trade, in the garment trades, and in the highly seasonal confectionery business. They are somewhat more inclined than boys to put up with unsatisfactory conditions, show somewhat less initiative than boys in searching for chances to better themselves, and especially when inexperienced in industry are somewhat timid about searching for work. All of these reasons tend to cause them to remain in their positions rather than resign.

among various classes of railroad employees is shown in Table XXII.

TABLE XXII

PROPORTION OF TOTAL TURNOVER CAUSED BY DISCHARGES AMONG CERTAIN CLASSES OF RAILROAD EMPLOYEES

Occupation	Number of roads reporting	Total number of terminations of employment	Total number of discharges	Percentage of discharges to total turnover
Engineers and conductors.....	10	479	125	26.1
Firemen and brakemen.....	10	6,334	1,627	25.7
Maintenance of equipment.....	14	61,313	3,514	5.7
Maintenance of way and structures...	14	114,357	5,942	5.2
Station agents, station men and telegraphers....	10	14,053	1,055	7.5

Thirteen street railway companies with a total of 30,968 terminations of employment, lost 6,611 men on account of discharge.

Among 33 establishments from which the writer collected figures, the discharges exceeded the lay-offs. Discharges numbered 3,382, or 12.0 per cent., out of 28,105 terminations of employment, lay-offs 2,679, or 9.5 per cent.

What proportion do discharges constitute of the average force? The proportion varies considerably, but in most cases discharges per year do not exceed 10 percent of the average force. The ratio of discharges to the average force is larger in the case of establishments with high turnover rates. The reason for this is that discharges are most frequent among newly hired men.[7] A large turnover usually

[7] In a Chicago plant investigated by the writer 40 out of 115 men hired in six departments during the year 1916 were discharged

TABLE XXIII

RATIO OF DISCHARGES TO THE AVERAGE OF THE MAXIMUM AND MINIMUM FORCES IN 78 ESTABLISHMENTS CLASSIFIED ACCORDING TO THE SIZE OF THE TURNOVER

Turnover rate	Number of establishments	Total of the averages of the maximum and minimum forces	Total number of discharges	Percentage of discharges to average of maximum and minimum forces
All establishments	78	154,933	16,963	10.9
200 percent and over	8	10,470	2,379	22.7
100 " to 200 percent	20	38,112	7,533	19.8
80 " " 100 "	5	7,144	536	7.5
60 " " 80 "	16	49,177	2,553	5.2
40 " " 60 "	15	33,907	3,294	9.7
Below 40 percent	14	16,123	668	4.1

means that a large number of men are being hired to replace those who leave and consequently discharges are numerous.

The tendency of the ratio of discharges to the force to be greater as the turnover rate increases is illustrated by Table XXIII showing the ratio of discharges to the average of the maximum and minimum forces employed during the year.[8]

Table XXIV classifies these 78 plants according to the size of the turnover and the ratio of discharges to the average of the maximum and minimum forces.

TABLE XXIV

PERCENTAGE OF DISCHARGES TO AVERAGE OF MAXIMUM AND MINIMUM PAYROLLS

Turnover rate	Total	Percentage of discharges to average of maximum and minimum payrolls								
		Below 5%	5% up to 10%	10% up to 15%	15% up to 20%	20% up to 25%	25% up to 30%	30% up to 40%	40% up to 50%	50% and over
All establishments.....	78	27	23	8	6	5	2	2	1	4
200% and over	8	1	1	....	....	3	....	....	....	3
100% to 200%.	20	2	5	1	5	1	2	2	1	1
80% " 100%.	5	3	1	....	1	....	....	....	....	....
60% " 80%.	16	8	5	3	....	....	....	....	....	....
40% " 60%.	15	4	7	3	....	1	....	....	....	....
Below 40 %...	14	9	4	1	....	....	....	....	....	....

Among 28 plants with a turnover of 100 percent or more, discharges constituted 15 percent or more of the average of the maximum and minimum forces in 18 or

before the end of the year. It is natural that, after this weeding out process has taken place, discharges should be less frequent.

[8] As explained above, in view of the difficulty in obtaining figures showing the actual average number of men, the average of the maximum and minimum number on the payrolls during the year is taken.

64.3 percent, but in only two out of 50 concerns with a turnover below 100 percent did the discharges equal 15 percent of the average of the maximum and minimum forces.

The unweighted averages of the percentage of discharges in these 78 plants to the average of the maximum and minimum forces are as follows:

Turnover rate	Number of establishments	Unweighted average of percentage of discharges to the average of the maximum and minimum forces
All establishments.....	78	12.5
200 percent and over.....	8	34.5
100 percent to 200 percent	20	19.5
80 " " 100 "	5	7.3
60 " " 80 "	16	5.6
40 " " 60 "	15	8.9
Below 40 percent	14	3.8

Because the number of discharges is closely related to the number of men hired, it is desirable to determine the proportion of men hired who are discharged within a given period, say a year. *The discharge rate expressed merely as a percentage of the average force discharged may be deceptive.* The number of discharges in a department in comparison with the average force may be low because the number of men hired in comparison with the average force may be low, *but the proportion of men hired who are discharged within a year of being employed may be extremely high* indicating inefficient hiring or an inadequate training system.

Discharges in most plants appear to constitute less than 20 percent of the number of men hired. They appear to average from 10 to 15 percent of the number of hirings. Seventy-eight establishments discharged 16,963 men in the same period (twelve months) during which they hired

139,966 men. Discharges constituted 12.1 percent of hirings. The unweighted average of the percentage of discharges to hirings in this group of 78 plants was 12.8 percent.

The following is a classification of the 78 establishments according to the ratio of discharges to hirings.

Percentage of discharges to hirings	Number of establishments in respective classes
Less than 5 percent	16
5 percent to 10 percent	17
10 " " 15 "	16
15 " " 20 "	16
20 " " 25 "	4
25 " " 30 "	4
30 " " 40 "	4
40 " " 50 "	1
50 " and above	None

Twelve additional plants from which the writer collected figures discharged 12,104 men in the same period in which they hired 122,460, a ratio of 9.9 discharges to 100 hirings. In seven of the twelve plants the ratio of discharges to hirings was between 5 and 15 percent. In one case the rate was 4.8 percent, in another 15.8 percent. The highest rate was 33.3 percent, the unweighted average for the group was 14.35 percent.

The ratio of discharges to hirings shows no regular tendency to vary with the size of the turnover as does the ratio of discharges to the average force. On the contrary the ratio of discharges to hirings appears to average substantially the same among groups of establishments with high turnover rates as among groups of establishments with low turnover rates. This constancy of ratio indicates that the number of discharges is largely determined by the number of hirings. Table XXV shows the ratio between the number of discharges and the number of hirings in 78 plants according to the size of the turnover, and the unweighted aver-

age of the number of discharges per 100 hirings among the establishments in each class. Contrast these figures with those on pages 92 and 93 showing the variation in discharges to the average force according to the size of the turnover.

TABLE XXV

RATIO BETWEEN THE NUMBER OF DISCHARGES AND THE NUMBER OF HIRINGS IN 78 PLANTS ACCORDING TO THE SIZE OF THE TURNOVER

Turnover rate	Number of establishments	Number of hirings	Number of discharges	Number of discharges per 100 hirings	Unweighted average of number of discharges per 100 hirings in the individual plants
All establishments	78	139,966	16,963	12.1	12.8
200% and over...	8	30,394	2,379	7.8	14.5
100% to 200%....	20	50,144	7,533	15.0	15.1
80% " 100%....	5	6,557	536	8.2	8.3
60% " 80%...	16	28,818	2,553	8.9	8.9
40% " 60%...	15	19,811	3,294	16.6	14.3
Below 40 percent.	14	4,242	668	15.8	13.1

The effect of the number of hirings upon the number of discharges must be taken into account in explaining the differences among different classes of workers in the ratio of discharges to the average number on the payroll. Because among skilled men hirings are few in proportion to the size of the force, the ratio of discharges to the average force is less among skilled men than among the force in general. In a large Chicago plant the comparative rates were as shown in the table on page 97.

The ratio of discharges to the number of hirings, however, shows that newly hired tradesmen are hardly less likely to be discharged than workmen in general. The per-

	1913			1914		
	Average force	Number discharged	Discharge rate	Average force	Number discharged	Discharge rate
Entire plant...	5,199	495	9.5	4,783	225	4.7
Tradesmen[9] ..	520	19	3.7	478	7	1.5
	1915			1916		
Entire plant..	4,795	114	2.4	5,994	467	7.8
Tradesmen[9] ..	480	8	1.7	599	11	1.8

centage of discharges to the number of men hired among tradesmen and the force as a whole was:

	1913	1914	1915	1916
Entire plant....	20.4%	43.5%	8.4%	8.1%
Tradesmen.....	19.0	31.8	2.9	9.2

In another Chicago plant the ratio of discharges to hirings among the skilled and higher grade of semi-skilled workers was greater than for the plant as a whole. In 1916 the plant hired 569 men and discharged 138, or 24.3 percent of the number hired. Of 115 skilled men and higher grade semi-skilled workers, 40, or 34.8 percent were discharged during the year.

The discharge rate, as is to be expected, is decidedly higher among men than among women. In an eastern textile mill the number of discharges of men in 1915 was 4.4 percent of the number of men on the payroll at the beginning of the year (a typical payroll) and the discharges among women 2.25 percent of the number of women on the payroll at the beginning of the year. The following are

[9] The average force of tradesmen was estimated by taking 10 percent of the total average force, the proportion tradesmen were found to constitute of a typical payroll in 1913.

the comparative discharge rates among the men and women employed by an eastern printing and binding establishment:

Men	1912	1913	1914	1915 (8 months)
Average payroll	445	352	349	325
Number discharged	33	26	15	16
Percent of number discharged to average payroll	7.4	7.4	4.3	4.9
Women				
Average payroll	258	210	184	171
Number discharged	11	14	8	1
Percent of number discharged to average payroll	4.3	6.7	4.3	.6

The rates of discharge among youths and girls (mostly under 21) in a Chicago metal working plant from 1913 to 1916 were:

	1913			1914		
	Approximate average force	Number discharged	Discharge rate	Approximate average force	Number discharged	Discharge rate
Youths	831	181	21.8	765	83	10.8
Girls	265	19	7.2	244	11	4.5
	1915			**1916**		
Youths	767	28	3.7	959	146	15.2
Girls	245	7	2.9	306	30	9.8

The actual number of youths and girls discharged each year is known but it was necessary to estimate the average number of each employed each year. This was done by taking the percentage of the average total force of the plant which the youths and girls were found to constitute of a typical payroll in 1913—16 percent and 5.1 percent re-

spectively. The discharge rates are not, therefore, absolutely accurate but are believed to be substantially so. In the two years of depression, 1914 and 1915, there is very little difference between the rates for the two classes—not enough, in view of the approximate character of the figures, to be significant. In both 1913 and 1916, however, the rate among the youths was substantially higher than the rate among the girls.

The Bureau of Vocational Guidance of the Chicago Public Schools found that 162, or 10.5 percent, of 1,541 boys lost their first position because of discharge and 89, or 6.6 percent of 1,353 girls.[10]

The percentage of discharges to the average force appears from the slight data available to be higher among youths and girls than among older employees. This is to be expected on account of the larger turnover among youths and girls and the greater number of new workers hired in proportion to the force. The percentages of discharges to the average force among youths, girls, and adult employees in a large Chicago plant were:

	1913	1914	1915	1916
Adults....	7.2	3.5	2.1	6.1
Youths....	21.8	10.9	3.7	15.2
Girls.....	7.2	4.5	2.9	9.8

An interesting question is whether the weaker sense of responsibility, the greater carelessness and shiftlessness which is to be expected among boys and young men due to their youth and lack of industrial training results in a higher discharge rate among them than among adults. This is best shown by comparing the ratio of the number of discharges to the total number hired among youths and adults. The following data from the Chicago plant men-

[10] *Report of Bureau of Vocational Guidance, Chicago Public Schools,* 1916, p. 37.

tioned above indicate that due to these causes or others the number of discharges in relation to the number hired is greater among youths than among adults:

	1913			1914		
	Hired	Discharged	Percent of discharges to hirings	Hired	Discharged	Percent of discharges to hirings
Adults..	1,520	295	19.4	294	131	44.6
Youths..	806	181	22.5	184	83	45.1
	1915			1916		
Adults..	1,056	79	7.5	4,039	291	7.2
Youths..	206	28	13.6	1,376	146	10.6

3. Effect of prosperity and depression upon the relative number of resignations, lay-offs, and discharges.

Resignations and discharges are much more numerous in times of prosperity than in times of depression. Lay-offs, on the other hand, appear to be less affected by prosperity and depression. In the early stages of depression when a general reduction of forces is taking place, lay-offs may temporarily increase, but the meager data available indicate that the increase in the number of lay-offs caused by depression is much less than the decrease in the number of resignations and discharges.

The following examples comparing the number of resignations, lay-offs, and discharges in 1913 and 1916, years of prosperity, with 1914 and 1915, years of depression, illustrate the effect of prosperity and depression.[11]

[11] The year 1915 was a transition year from depression to prosperity. In the east during the latter part of the year there was a strong labor demand, but in the west the recovery was slower. The figures quoted above are all from establishments in the middle west, where the labor market was that of a year of depression.

METAL WORKING ESTABLISHMENT

	1913	1914
Resignations	2,788	1,068
Lay-offs	216	522
Discharges	219	49
Total	3,223	1,639

TELEPHONE COMPANY

	1915	1916
Resignations	980	2,457
Lay-offs	1,086	940
Discharges	193	323
Miscellaneous	29	16
Total	2,288	3,736

RUBBER GOODS

	1913	1914	1915	1916
Resignations	19,161	4,176	5,037	23,124
Lay-offs	2,099	2,167	806	537
Discharges	2,641	695	901	1,749
Total	23,901	7,038	6,744	26,610

METAL WORKING ESTABLISHMENT

	1913	1914	1915	1916
Resignations	238	133	107	332
Lay-offs	32	51	42	...
Discharges	164	75	62	138
Miscellaneous or unknown	75(*a*)	4	1	25
Total	509	263	212	495

(*a*) The detailed records for this year from February 9 to March 22 were missing so that it was impossible to classify 74 instances of termination of employment occurring within this period. Were the distribution of these 74 cases the same as that of the remaining 434, the number of resignations for the year would be 278, the number of lay-offs 37, and the number of discharges 193.

METAL WORKING ESTABLISHMENT

	1913	1914	1915	1916
Resignations....	1,996	616	676	3,654
Lay-offs.....	188	27	240	85
Discharges.....	495	225	114	467
Total.....	2,679	888	1,030	4,206

Most interesting is the relation of prosperity and depression to the number of discharges. That discharges are fewer in times of depression than in times of prosperity is borne out by many instances in addition to those cited above. For example a street railway company which discharged 71 men in 1913 discharged only 43 in 1914; a printing and binding establishment which discharged 40 hands in 1913, discharged 23 in 1914 and 20 in 1915; a department store which in the six months, December 1, 1914 to May 31st, 1915 discharged 41, discharged 78 in the six months from December 1, 1915 to May 31st, 1916 when prosperity had returned.

The reasons why discharges are fewer in years of depression probably are: (1) Fewer men are hired. Most discharges occur among newly hired men who fail to make good. (2) On account of the scarcity of work, men are more careful to avoid being discharged. It is a well recognized fact that workmen do more and better work in times of depression than in times of prosperity. They realize that the poorest and slowest workmen will be laid off first when the force is reduced. Counteracting in part these tendencies is the fact that in times of prosperity when men are scarce the management is willing to put up with shortcomings which it will not tolerate in times of depression when good men are plentiful.

If the discharge rate be calculated as a percentage of the number of men hired instead of as a percentage of the average force, it becomes clear that the decrease in the num-

ber of discharges in times of depression is largely due to the decrease in the number of men hired, for the ratio of discharges to the number of hirings increases rather than declines, or declines very slightly. The following figures contrast the percentage of discharges to hirings in four plants for 1914 and 1915, years of depression, and 1913 and 1916, years of prosperity:

Year	Metal working plant	Metal working plant	Rubber goods	Printing and binding
1913	20.4%	35.8%	11.9%	26.6%
1914	43.5	37.8	8.9	23.2
1915	8.4	25.1	8.1	33.3
1916	8.1	24.2	5.8	....

PART II

THE COST OF THE TURNOVER

CHAPTER VI

THE COST OF THE TURNOVER TO THE EMPLOYER

1. Factors of cost to employers.

The cost of the turnover to the employer falls into two principal parts:

1. The cost of breaking in a new man for the place.[1]

2. The limitation placed by the turnover upon the amount which the employer can profitably invest in his workmen and consequently the limitations placed upon the output which the employer can obtain from his workmen.

1. The cost of breaking in a new man consists of the following principal items:

a. The cost of hiring. This includes employment office expense cost of medical examination and of advertisements, pro-rated over the number hired.

b. The cost of training. This includes the share of the training department's cost and the value of the foreman's or other workman's time spent in instructing the new hand.

c. The extra labor cost. In case of payment by the piece, this item includes day wages in excess of piece rate earnings paid new operatives during the learning period until they are able to make a fair day's wage at piece work. In case of payment on a time basis this item includes the cost of the time above the normal which the inexperienced worker takes to perform the operation.

[1] That it is not necessary immediately to replace the worker does not of course alter the fact that a loss is sustained by the resignation of a worker or the necessity of laying him off, because the number of men which must be broken in is increased. The additional cost of breaking in workers attributable to seasonal fluctuation in the volume of business is an item to be included in calculating the amount which can profitably be spent to regularize employment.

If it is necessary to hire extra men to make up for the deficiency in production until the new worker attains the normal output, all wages paid these men on a time basis are included in the labor cost of the turnover. If it is necessary on account of the lesser efficiency of the new worker for regular employees to work overtime, all time wages paid them on account of overtime or holiday work and all wages in excess of the regular piece rate or bonus rates paid on account of overtime or holiday work are items in the labor cost of the turnover.

d. Cost of extra power, lubrication, and materials caused by reduced rate of output. If, because of the reduced rate of output, it is necessary to drive the machinery ten hours to produce an output which at the normal rate could be produced in five, the cost of the power, lubrication, etc., necessary to run the machinery the additional five hours is an item in the cost of breaking in the new workman. This item also includes the cost of power and lubrication used in driving machinery which it would have been unnecessary to use had the machinery used by the new operative produced its normal amount.

e. Profits which would have been realized upon orders which, because of the smaller productive capacity during the period before the vacancy is filled and during the period of breaking in the new man, it is impossible to fill.

f. Interest, depreciation, insurance, taxes, and repairs on additional plant investment necessary because of the lessened output caused by the turnover.

g. Cost of work spoiled by new operatives in excess of the normal rate of spoilage by workmen experienced in the operation.

h. Greater wear and tear on machinery. This includes the greater cost of repairs due to breakage and the greater depreciation due to harder usage, caused by the inexperience of the operative, and to the necessity of running machinery a longer period in order to obtain a given output. This item includes extra wear and tear of all kinds on machinery which it would be unnecessary to operate were the normal production maintained on the machinery used by the new hand.[2]

[2] This is distinct from depreciation and repairs on additional equipment required on account of the lessened output, which is included under "f." It may be necessary to have certain machinery which it is not necessary to operate full time. Elimination of the loss of production caused by the turnover would not permit the equipment used only part time to be dispensed with. The deficiency in production caused by the turnover, however, may necessitate operating the machinery which is regularly used part time, a longer period than would otherwise be necessary. The wear and

i. Increased cost of accidents due to greater accident frequency during the learning period. To employers who carry their own risk, this item is of great importance. To employers who receive a reduction of premium rates for a low accident record this item is also of considerable importance. To employers who pay a fixed insurance rate based on the payroll, this item is of less immediate importance. The high accident frequency among green employees greatly increases accident rates, however, and a general reduction in the turnover rate resulting in a lower accident rate would make possible in time a reduction in the cost of accident insurance.

The increased accident cost includes not merely the cost due to greater accident frequency among inexperienced men, but also the greater liability to accident due to the fact that the lower productive capacity of new men requires the employment of a *larger number* of men.

j. The loss of good will and business, and the expense of making adjustments and replacements for goods defective because of the greater number of mistakes made by inexperienced workers, and the loss of business and good will and the extra expense caused by the less satisfactory service rendered customers by inexperienced employees.

2. The limitation placed by the turnover upon the training which can be given workmen is a cost which cannot be definitely ascertained and which has been generally neglected in discussions of the cost of the turnover. Nevertheless it is one of the most important of all items of cost. Stability is a fundamental prerequisite to efficiency in the force because efficiency is largely conditioned upon elaborate and intensive training of workers. Such training is possible only when the force is relatively stable. If the probability is great that

tear caused by this extra period of operation is attributable to the turnover. For example, a factory may require two of a certain size and type of lathe. Both machines are necessary, regardless of the turnover, but it is necessary to operate one of them only 50 percent of the time. During the period of breaking in a new man on one of these lathes, its output may be reduced 25 percent, so that in order to make up for the deficiency it is necessary to operate the second machine 75 percent of the time instead of 50 percent. The wear and tear attributable to this additional period of operation is an item in the cost of breaking in the new worker.

new men hired will leave shortly, the employer cannot incur a great expense in training them because he is unable to recover his investment in the workers before they leave. If, however, the prospect of new men remaining for some time is good, the employer may profitably incur considerable expense in developing their skill.

As the prospects of newly hired men's becoming permanent employees grow better, we may expect large sums to be spent by employers upon elaborate training systems and upon the intensive development of workers which will render them far more productive than at present.

2. The ascertainment of the cost of breaking in men.

No attempt will be made here to outline a model cost accounting system for indicating the cost of the turnover, which, with variations, might be adapted to specific plants. The purpose is simply to indicate some of the more general and fundamental considerations which must be taken into account in estimating the cost of the turnover.

The accurate estimate of the turnover cost is extremely difficult. The precise dollars and cents amount of many of the items enumerated in the preceding analysis of the turnover cost cannot be accurately ascertained. The amount of other costs can be ascertained only by very minute and laborious investigation and by the accumulation of voluminous data. Such costs as excess depreciation of equipment caused by the turnover, interest, depreciation, insurance, taxes and repairs on the additional plant investment necessitated by the turnover, loss of good will and business, and expense of adjustments and displacements due to the greater number of errors made by inexperienced men, lessened efficiency of labor due to the limitation upon the training which can profitably be given new men and due to the demoralization of labor by the uncertain duration of employment and frequent loss of job, cannot be definitely ascertained. Items which can be ascertained only with much

labor and difficulty are excess breakage to machinery, excess spoilage, excess accident cost, and excess consumption of materials and supplies due to the inexperience of new men. In order to estimate these costs, it is necessary to ascertain what is the typical cost due to breakage of machinery, spoilage, accidents, and consumption of materials among experienced men, and then to ascertain the typical excess cost incurred by new men in these respects until they reach what is regarded as normal efficiency. The efficiency of different workmen differs and for this reason the amount of breakage to machinery, spoilage of materials, frequency and seriousness of accidents, and consumption of materials differs. In order to estimate with great accuracy the typical breakage, spoilage, accident, and consumption of material rates among experienced and among new men, it is necessary to obtain an average based on data from a sufficient number of cases to represent a typical distribution of ability.

In plants where these data are kept as part of each workman's efficiency record, the calculation of the average performance of experienced men and new men is comparatively simple. The collection of these data for the mere purpose of throwing light on the cost of the turnover, however, is not likely to be worth while, and in plants where the data are not collected as a check upon the efficiency of individual workmen, another method of estimation must be resorted to. The simplest and most practical seems to be to select one or several newly hired workmen of some or more than average promise and to keep a detailed record of their breakage, spoilage, and consumption of materials both during their learning period and after they have attained normal proficiency. If the workers turn out to be somewhat above the average in proficiency, their excess breakage, spoilage, and consumption of materials during the learning period should be somewhat less than the excess caused by the worker of average ability and should, there-

fore, be a conservative estimate of the amount of these items of cost in breaking in men of average ability.[3]

The numerous variables which affect almost every item in the cost of breaking in men render the cost for one job no indication of the cost for another job even though the degree of skill required to perform each job is substantially the same. One workman may work with extremely fragile and high priced material or with delicate and expensive machinery, easy to get out of adjustment, another with crude, inexpensive material and heavy machinery which the lack of skill of the new man is unlikely to injure. The danger of the new man's causing injury to himself or to others varies greatly between jobs of equal skill. In the case of some operations, defects in the operative's work are easy to detect, in the case of other operations, defects are difficult to detect and may reach the customer and cause trouble. For all of these points of variation it is impossible to take

[3] The question will be asked, when has the worker passed from the learning stage and reached the stage of normal proficiency? It is obviously impossible to designate a specific point at which a worker suddenly ceases to be a learner and becomes a full-fledged, normally proficient workman. It is a case of gradual development and of gradual transition. The fact that no precise point of transition can be designated is, however, of little consequence. If the rate of output of a worker be plotted, it will be found to rise sharply at first (usually a step-like progress—that is, rapid progress followed by stationary stages) and to continue to rise at a constantly decreasing rate. The rise in efficiency continues often for several years, but after the first few months it is very slow. The point at which the rapid rise in efficiency ceases and at which the curve becomes substantially level marks the attainment of normal productivity. As the decline in the rise of the curve is gradual, no point in particular can be selected as marking the transition. The very fact that the worker's efficiency is developing rather slowly at this stage causes it to make little difference in the result precisely which point is selected. For the sake of conservatism in estimating breaking in costs, the learning period should be underestimated.

the cost of breaking in a man for any given job and from it to estimate that the cost of breaking in men for jobs of substantially the same degree of skill is substantially the same, or to lump the jobs in a plant according to skill and to estimate that the cost of breaking in skilled artisans is a given amount, semi-skilled workers another amount, and unskilled workers another amount.[4]

In calculating the cost of breaking in men, the fundamental fact must not be overlooked that the cost data are to be used not to figure a *selling* price but to figure a *buying* price. The data purport to show how much the employer can afford to *spend* to reduce his turnover. The fundamental rule of statistical and accounting practice that *errors must be on the side of conservatism* works differently in ascertaining the cost of breaking in men than it does in ascertaining the cost of production. The inevitable inaccuracies in much of the data on the basis of which the estimates of the turnover cost are made render the observance of this rule of particular importance. In ascertaining the cost of production which is to be used to fix a minimum selling price, it is conservatism to overstate rather than to understate the costs. In ascertaining the cost of breaking in men which is to be used as a guide

[4] The cost of breaking in men for relatively unskilled work is often surprisingly high. Street railway motormen are an example. Motormen rank only as moderately semi-skilled men and receive wages less than are received by factory workers doing moderately difficult work. The cost of breaking them in, however, is estimated at from $200 to $400. The reason for this is that the mistakes which motormen are likely to make may have very costly consequences. They are entrusted with valuable equipment, injuries to which may be costly. Their mistakes are likely also to result in personal injuries, which are expensive. Not only do new motormen cause considerable expense on account of their mistakes, but to reduce these mistakes the companies undergo the expense of giving motormen an intensive training course and individual supervision for some time after they commence operating.

for *expenditures,* it is conservatism to *understate* rather than *overstate* the costs.

It was pointed out in Chapter IV that the greater number of terminations of employment occur among newly hired men. Many of these men leave or are discharged after a very short period of employment before they have learned their new job. It is frequently necessary, therefore, to hire several men before a permanent employee is obtained. For example, in a Chicago metal working plant, out of 24 toolmakers hired during the year 1916, 6 left within the same month in which they were employed, 3 in the next month, and 2 more in the third month. Of 9 planer hands hired during the year, 1 left after working less than a week and 2 more within a month of being hired. Of 34 lathe hands leaving in the course of the year, 6 left within their first week of employment, 7 more within the second week, 3 more within the first month, and 5 more within two months. Out of 19 bench-hands hired during the year, 5 left within a week of being hired, 4 more within 2 weeks, 1 more within a month. Out of 14 assemblers hired, 5 left within a month, and out of 14 miscellaneous semi-skilled workers in another department hired during 1916, 2 left within a week, 2 more within two weeks and 2 more within a month.

It is, of course, erroneous to charge each one of these terminations of employment with the total cost of breaking in a new man for the job. The men who leave after several days' or several weeks' employment are, of course, not responsible for as great a cost as is necessary to completely break in a man for a position. It is, therefore, erroneous to estimate the cost of the turnover by multiplying the number of terminations of employment in a given position by the cost of completely breaking in a man for the position. It is proper to charge to the original termination of employment the total amount spent upon

breaking in all of the men hired for the vacancy until it is permanently filled. In this case there is nothing to charge against the terminations of employment of the transients who left before learning the job, since the cost of filling their places is already charged against the original termination of employment. It is also proper to charge to each termination of employment the cost incurred in breaking in the next worker hired, whether he is completely broken in or leaves within a short period.

Since the cost of the turnover is not equal to the total cost of completely breaking in a man times the number of terminations of employment, it is necessary, in order to ascertain the cost of the turnover, to know the approximate average amount spent upon breaking in men per termination of employment. The best method of ascertaining this amount is to ascertain the total amount actually spent upon breaking in men for a given position, both those who left before attaining normal efficiency and those who remained a sufficient period to attain normal efficiency, over a period long enough to give the typical experience of the plant, and to divide by the number of workers involved. The resulting average is the average expenditure for breaking in new men attributable to each termination of employment in the position, assuming each termination of employment requires sooner or later the hiring of a new man.

The error of assuming that every man who is hired goes through the entire breaking in period and represents a loss to the company of the entire cost of breaking in a man at that job is made by both Mr. Alexander and Mr. Grieves in estimating the cost of the turnover.[5]

[5] M. W. Alexander: "Hiring and Firing: Its Economic Waste," *Proceedings of the National Machine Tool Builders' Association*, 1914, pp. 98-99; *American Industries*, v. XVI, pp. 17-22; *Annals of the American Academy of Political and Social Science*, v. LXV, May, 1916, on "Personnel and Employment Problems," p. 128; W. A.

A second error in calculating the cost of the turnover is to neglect the fact that newly hired men in many cases do not receive the full wage received by experienced workmen. It is a common practice in hiring men for jobs which are paid by the hour to say to the applicant:

"We will start you in at so much per hour and when you show you can do the work we will raise you to such and such an amount."

The smaller amount paid the man during the learning period makes up in part for the cost of breaking him in and must be deducted in calculating the cost of the turnover. It is probably true that in most cases the workman's hourly rate is not raised to the standard for experienced employees until he has maintained the normal rate of production for some time. During this time the employer obtains the standard output at wages slightly less than the standard rate. The feeling is very prevalent among managers that even in the case of equal ability older men are entitled to a little more than new men. Because older men are given slightly more, a new man may actually be the cheaper.

The manner in which wages rise as duration of employment increases is illustrated by the data given in Table XXVI showing the wages received by tool and pattern makers in a large Milwaukee metal working plant. These men were all paid solely by the hour. The records showed the date each workman started, the initial wage received, and the date and amount of each change in the rate of every workman. For the sake of convenience I have reduced the figures to a percentage basis.

Grieves of the Jeffrey Mfg. Co., Columbus, Ohio, "The Handling of Men," privately printed.

Mr. Alexander attempts to allow for the less cost of breaking in men who have worked at the same occupation before, but Mr. Grieves apparently leaves that factor out of account.

TABLE XXVI

ADVANCE IN WAGES AS DURATION OF EMPLOYMENT INCREASES

Duration of employment	21 toolmakers employed 6 months or more	16 toolmakers employed 2 years or more	11 toolmakers employed 4 years or more	9 toolmakers employed 7 years or more	7 pattern makers
Start	100.0	100.0	100.0	100.0	100.0
6 months	101.9	101.3	101.2	100.6	102.7
1 year	.....	104.9	106.3	105.9	105.6
2 years	.....	115.0	115.8	117.6	111.7
3 years	.....	.....	117.0	118.2	115.0
4 years	.....	.....	117.6	119.0	.....
5 years	.....	.....	.....	121.0	.....
6 years	.....	.....	.....	121.0	.....
7 years	.....	.....	.....	125.0	.....

The toolmakers listed in the four columns are the same men except that column one contains all toolmakers who had worked six months or more, column two only such toolmakers as had been employed two years or more, column three only such as had been employed four years or more, etc.

The figures show that the rise in wages is very slight during the first six months, that it is greater during the second six months, and that it is particularly rapid during the second year. To some extent, of course, the increases mean that the workman is being advanced to more difficult and exacting work. To a great extent, however, the advances simply mean that workmen who were started at a slightly less rate than the rate paid to older employees doing the same work are advanced as they demonstrate their ability. Most of the advance in the first year is probably due to this reason, and the lower rate paid the workmen during this period should be considered a credit to be deducted from the cost of breaking them in. This credit will amount to a large percentage of the total cost of

breaking in men. We may take the 16 toolmakers who had worked 2 years or more as an example and assume that the wage which they received at the end of a year represents the normal wage in the shop for experienced men at the particular kind of work. The difference between that rate and the rate actually paid them during their first year would be due to their inexperience and lesser proficiency. We may assume that the average rate paid the men during the first year exceeded the starting rate by one-half the increase in the course of the year. This obviously is an over-estimate as the figures show the increase did not occur uniformly but mainly in the second six months. This would give an average rate of 102.45 compared with the starting rate of 100.0. It is less than the rate assumed as the normal rate for experienced men by 2.45 percent of the starting rate. If a man was started at 45 cents per hour and worked eight hours a day, twenty-four days a month for twelve months, his earnings would be $1036.80. Two and forty-five hundredths percent of this amount is $25.40. This is the amount which, according to hypothesis, should be deducted from the gross cost of breaking in a man, because of the fact that the inexperienced man is paid a lower rate than the experienced. Even if this amount be cut in two or in three, its deduction would make a substantial difference in the net cost of the turnover and cannot with accuracy be left out of consideration.

It is a common practice for street railway companies to advance the wages of motormen and conductors one cent per hour at the end of each year of service. Thus a second year man receives one cent an hour more than a first year man, a third year man one cent an hour more than a second year man, etc. Two hundred and fifty working days in the year at 8 hours per day gives 2,000 working hours per year. One cent per hour for 2,000 hours makes

a difference of $20 per year in the annual earnings of workers of a year's difference in duration of service. If the breaking in period be considered as one year, $20 must be deducted from the breaking in cost of each man because of lower wages received by inexperienced men.[6]

A striking illustration of the expense of learning an operation being partially borne by the workman is furnished by the pressers and cutters in the New York garment trades. No systematic means of training these workers existed in the industry, and it was necessary for most workers to learn their trade "on the job." Ninety-five out of 100 pressers interviewed by the agents of the Bureau of Labor Statistics and 88 out of 100 cutters learned their trade in this manner.[7] It was customary for the

[6] In many cases the difference between the hourly wages of first and second year street railway trainmen is more than one cent. The following table showing the union wage rates of motormen and conductors in six large cities in September, 1915, shows that in many instances the difference is more than a cent per hour. The table is taken from the report of the Cleveland Education Survey, volume on *Railroad and Street Transportation,* by Mr. R. D. Fleming, p. 71.

City	Years of Service									
	1	2	3	4	5	6	7	8	9	10
Boston	26¼–27	28¼	29	29¼	30¼	32	....	....	....	....
Cleveland	29	32	....	....	....	....	....	....	....	....
Detroit	25–30	32	....	....	....	....	....	....	....	....
Buffalo(*a*)	23	24	25	27	28	29	29	29	29	30
Buffalo(*a*)	23	25	26½	28	29	30	....	....	....	....
Cincinnati	21–22	24	24	25	25	25	26	26	27	28
Indianapolis	21	23	24	25	26	27	....	....	....	....

(a) Two divisions of the street railway union.

[7] "Wages and Regularity of Employment in the Cloak and Suit and Skirt Industries," Bureau of Labor Statistics, *Bulletin* No. 147, p. 159.

workers to begin at the simplest operations, as piece pressers or canvas cutters, often working for a number of weeks without pay, or actually paying for the privilege of learning and then advancing to a small wage. Out of eleven pressers whose history is given in detail by the Bureau of Labor Statistics, four worked as learners without pay, two positively paid for the privilege of learning and two started at very low wages. Out of thirteen cutters whose detailed history was given, one worked without pay, three worked without pay and also paid to learn, five began at very small wages and one took private lessons to learn the trade.[8]

A third error in calculating the cost of the turnover consists in the treatment of overhead charges. The method

[8] *Ibid.*, pp. 139-144.

The details of some of these cases as stated by the Bureau are given below. They illustrate forcibly the contribution which the workman makes toward the expense of his own training.

Presser No. 1. Learned the trade by working as a helper in a shop where he worked 6 weeks as a learner without wages. At end of first year was making $18 a week.

Presser No. 3. Began as piece presser, working two weeks for nothing as a learner, then 3 weeks at $3, then a few weeks at $3.50, then a few months at $5, and by end of first year had worked up to $8 as an upper presser on skirts.

Presser No. 4. Began as under presser, working 5 weeks at $4, then 2 years at $7.

Presser No. 5. Began as piece presser, working 2 weeks for nothing, then 3 months at $3, then at $7.

Presser No. 6. Worked 2 weeks at $5 per week, then several months at $8, then a year at $12.

Presser No. 7. Began as reefer presser, worked 6 months at $8 per week, then at $10, and at end of first year was making $11.

Presser No. 8. Began as under presser and piece presser, worked 2 weeks for nothing, then 2 weeks for $3, then 3 months for $5, then for $8. At end of first year was making $10 as under presser.

Presser No. 9. Began as skirt presser, paying $5 for the privi-

employed in several instances has been to charge the inexperienced worker with a cost equal to the amount which, on account of his deficient production, the worker fails to contribute to overhead charges. For example, if a charge equal to the piece rate price is made against each unit of product for overhead, and if, during his learning period, the worker fails to attain the normal piece rate earnings by $20, a charge of $20 for uncompensated overhead charges is made against him.[9]

lege of learning, and in addition working 2 weeks without pay, then a few weeks at $3 and a few weeks at $6, up to $11 at the end of the first year.

Presser No. 10. Learned the trade as operator and presser in the Russian army, but, notwithstanding his previous experience, paid $10 to learn and worked 4 weeks without pay, then for $10 a week.

Cutter No. 1. Began as a learner, making $5 to $8 the first year. Worked one year as a canvas cutter at $10.

Cutter No. 3. Began as a learner at $4. Worked up to $11 in 6 months.

Cutter No. 5. Started at $6 per week, working up to $10 in 5 years.

Cutter No. 6. Paid $25 to learn and worked 4 weeks without pay; after that received $6 per week. In 2 years was making $14 as trimming cutter.

Cutter No. 7. Began as helper trimming and cloth cutter at $5 to $9. In 11 years worked up to $24 as a cloth cutter.

Cutter No. 8. Took private lessons from a cutter in latter's home.

Cutter No. 10. Began at $3 per week as a helper trimming cutter. In a year was making $8 as assistant trimming cutter.

Cutter No. 11. Paid $50 to learn and worked 2 months without pay.

Cutter No. 12. Worked 6 weeks without pay, then 6 months at $3, then at $7. The next year earned from $10 to $14.

Cutter No. 13. Worked 4 months at $5, then advanced to $10. Also attended a private designing and cutting school.

[9] Apparently this is the position of Mr. M. W. Alexander in his article on "Hiring and Firing: Its Economic Waste" in the *Annals of the American Academy of Political and Social Science*, v. LXV,

In so far as the turnover, by reducing the productivity of the equipment, makes necessary a greater investment in plant and equipment than would otherwise be required, it is clearly chargeable with the entire overhead charges on the additional investment in plant and equipment. As for the overhead charges upon the remaining investment in plant and equipment which is not rendered necessary by the turnover and for indirect labor cost, it is clearly erroneous to charge the turnover with a portion of these costs in the ratio that it causes a deficiency in production, because the deficiency in production has no relation to these costs. These costs are totally independent of the turnover. A reduction in the turnover does not reduce them; an increase in the turnover rate does not increase them.

To this it will be answered that although the turnover does not affect the *total* indirect costs, it does affect the indirect costs *per unit* of product, because by reducing production it compels the distribution of the total cost over fewer units of product and that, in so far as the

May, 1916, on "Personnel and Employment Problems," pp. 138-139; *American Industries*, v. XVI, pp. 17-22. Mr. Alexander figures the loss due to reduced production by taking overhead charges as a given percentage of wages and by applying this percentage to the average deficiency in production during the learning period.

This error is made also by Mr. Boyd Fisher with respect to indirect labor costs ("Determining Cost of Turnover of Labor," *Annals of the American Academy of Political and Social Science*, v. LXXI, May, 1917, on "Stabilizing Industrial Employment," p. 46). Mr. Fisher, in calculating the cost of reduced production, prices the deficiency in production, in case piece work is paid, at the cost of *indirect* labor, in case day work is paid at the cost of both *indirect* and direct labor. With respect to overhead due to interest, depreciation, insurance, etc., upon plant, Mr. Fisher does not fall into the above error, since he charges overhead against the turnover only for the *excess* plant required on account of the reduced production. Differences of opinion are possible concerning the method of ascertaining the charge of excess plant.

turnover increases the unit costs, it is properly chargeable with an expense. This argument presupposes that due to the turnover the output of the plant is less than it would be were the turnover reduced. It presupposes that business is being lost because of inability of the firm to produce enough to fill all orders. If as a matter of fact the enterprise is already producing all that it is able to sell, a reduction in the turnover would not lead to an increase in production.

If, however, the enterprise is unable to produce the entire amount which is demanded, or if the reduction in the turnover would so reduce costs as to make possible a selling price which would create a demand for the increased output, the proper measure of the cost of the high turnover is not the excess unit cost caused by the turnover, but the profits upon the additional sales which the reduction of turnover would make possible.[10]

[10] To illustrate this point we may assume a plant with annual overhead expenses of $50,000 producing 100,000 units of product per annum. The overhead cost per unit of product is $.50. If we assume the deficiency in production due to the turnover of 25,000 units of product per year, according to the method of charging overhead against the deficiency in production at the regular rate ($.50 per unit), the cost of the turnover due to decreased production would be $12,500 per year.

This, however, does not measure the actual loss due to decreased production. We may assume that the product sells for $1 per unit. The total profit when 100,000 units are sold over and above overhead is $50,000. If, due to the reduction of the turnover, 25,000 additional units can be produced by the same plant, the profit over and above overhead would be $75,000, indicating a loss of $25,000 per year, instead of $12,500 due to reduced production caused by the turnover. The amount would differ according to the selling price of the product. If the selling price were $2, the loss in profits due to the turnover would be $50,000, etc.

In connection with the loss caused by the turnover due to its restriction of output, it should be noted that the turnover is likely

In ascertaining the excess investment in plant and equipment necessitated by the turnover, it must be observed that the deficiency in output of new men does not measure the excess investment in plant and equipment.[11] The reasons for this are:

(a) There are many machines of which only one is required and which, because they perform fast and simple operations, are operated only part time. The productive deficiency of a new hand on these machines can be compensated by a longer period of operations. In other cases several of a given kind of a machine may be required but it may be necessary to operate one of the number only part time. The deficient operation of an inexperienced hand on one of the full time machines can be compensated by operating the part time machine full time.

(b) The reduction in output caused by the turnover may be too insignificant to warrant the installation of additional equipment. The deficiency when a new hand is being broken in can be met by overtime work of an experienced hand.

(c) A reserve capacity may be required for emergencies, break-downs, etc. This reserve capacity may be sufficient

to be greatest in times of prosperity, precisely when the productive capacity of many plants is being taxed to the limit.

[11] Mr. Fisher apparently regards the deficiency in production of new men as measuring the excess investment required in plant and equipment, since he assumes that plant investment required under present conditions will bear the same ratio to the investment which would be needed were there no turnover as the production possible with the present equipment operated by all experienced men would bear to the present actual output. He states as axiomatic "that if the deficiency in production is 20 percent, the excess in plant investment is 20 percent." He leaves out of account the fact that a deficiency in the production of individual workmen does not mean a deficiency in the production of the plant as a whole. *Op. cit.*, p. 49.

to compensate for the decreased output during periods when new hands are being trained.

(d) The fact that an excess investment in certain items of equipment may be necessitated by the turnover does not mean that a proportional increase in investment in the shop as a whole will be required. If, on account of the turnover, ten percent more machinery is required, the investment in buildings, elevators, shafting, cranes, etc., will not necessarily be ten percent greater.

A factor of great importance in the cost of the turnover is the proportion of men hired who have had experience, either in the given plant or elsewhere, which renders them competent to perform the work for which they are hired with little instruction or practice. Unfortunately data are not available showing the proportion of men who are hired in different plants for work substantially similar to that which they have previously done. The only data available are figures of the proportion of men hired who had previously worked in the same plant regardless of the nature of their former job. These data show that the proportion of rehirings to total hirings varies widely, ranging from slightly over 10 percent to over 50 percent. The proportion of rehirings tends to be large in establishments in which there are great seasonal fluctuations in the work and which let workers go only to take them back when the rush season commences, and in more or less isolated establishments which constitute the principal source of employment in a locality.

The former Department of Commerce and Labor has published the figures on rehirings in a steel mill—an example of an industry characterized by great fluctuation within each year.[12]

[12] "Labor Conditions in the Iron and Steel Industry," v. III, p. 381, 62nd Congress, 1st Session, *Senate Document*, No. 110. The data are given in Table XXV.

TABLE XXVII

RELATION OF MEN REHIRED WITHIN A YEAR OF LEAVING TO ALL MEN LEAVING AND TO ALL MEN HIRED IN A STEEL MILL

Year	Total number of employees leaving	Employees hired during the year	Employees leaving but returning within the year	Percent of all employees leaving who returned within the year	Percent of all employees hired who were rehired within a year of leaving
1905	16,533	20,672	6,649	40.2	32.1
1906	19,642	20,116	6,733	34.3	33.5
1907	21,259	18,394	6,689	31.4	36.3
1908	10,841	11,103	6,934	63.9	62.4
1909	15,549	18,954	8,162	52.5	43.1
1910	20,509	19,178	6,135	29.9	32.0

These figures do not, of course, show the entire extent of rehiring in this plant since they give separately only those men rehired within the *calendar year*. Note how the number of men who returned within the year increased in the years 1908 and 1909, although the total number of men leaving in those years was smaller than in any other year. On account of the depression and scarcity of jobs, men were glad to return to their old jobs if opportunity offered. As men resigned or were discharged, the management rehired men who had been laid off on account of the depression. The number of rehirings is particularly great in 1909 because in the latter part of that year the steel business became brisk, the force was increased to normal size, and men laid off were taken back. An increase of 3,266 took place in the force in this year.

Another example of a large number of rehirings during and immediately following a depression is furnished by a Chicago metal working plant. In 1908 this plant hired 1,555 men, 648 of whom, or 41.7 percent, were rehired. Of these 648, 376 were men who had been laid off on account of the depression beginning late in 1907 and who

were taken on in preference to new men as vacancies occurred. In the early months of 1908 the establishment was also gradually increasing its force to normal and a steady increase from 2,769 on January 28th, to 3,151 on June 16th, occurred.

In 1909 this plant rehired 335, or 14.5 per cent., out of a total of 2,312 hired. Fifty-one of these were men previously laid off. In 1910 this firm rehired 378 men out of a total of 2,599 hired—again a percentage of 14.5 percent. In this year 104 men hired were men who had recently been laid off.

A mail order house with a business subject to sharp fluctuations found that of 8,841 workers hired in 1914, 2,991, or 33.8 percent, had been previously employed by it.

An Illinois manufacturer of agricultural implements with a very marked seasonal fluctuation in his business found that 670, or 32.7 percent, out of 2,046 workers hired in 1911-1912, had previously been in his employ. Of the 670 rehired in 1911-1912, 250, or 37.3 percent, had been away for less and 420, or 62.7 percent, for more than a year. Of the 479 rehired in 1915, 199, or 41.5 percent, had been away less than a year and 280, or 58.5 percent, more than a year. This plant follows a definite policy of letting men laid off know that their return is desired and that they will be given preference if of good record.

Miss Allinson, in her study of the women in the dressmaking industry, gives the figures shown on page 128 concerning the proportion of workers who returned in the fall after the summer suspension of business.[13]

In shop B, Miss Allinson states that 50 percent of a force of 96 in 1910-1911 returned for work the following year. In shop D, 40 percent of 55 workers on the payroll in 1908-1909 returned to work in the following year, 49

[13] May Allinson, "Dressmaking as a Trade for Women," Bureau of Labor Statistics, *Bulletin* No. 193, p. 105.

Shop	Total employed in spring season of 1911	Percent returning in fall season of 1911
A	69	32
D	44	39
G	33	49
H	23	78
K	11	72
L	8	75
M	4	75

percent of 65 employed in 1909-1910 returned to work in the next year. In shop F, 38 percent of a force of 58 employed in 1908 returned in the following year. The entire force of 1909 returned in 1910.

An old established eastern silk mill which was practically the only industry in the small town in which it was located (although there were other towns in the vicinity) found that out of 10,007 workers hired from 1908 to 1915 inclusive, 4,629, or 46.3 percent, had previously been in its employ. The details by years are as follows:

Year	Total hired	Number rehired	Percent rehired
1908	520	191	36.8
1909	1,129	512	45.3
1910	1,193	525	44.0
1911	1,168	549	47.0
1912	983	424	43.2
1913	1,630	681	41.8
1914	1,260	591	46.9
1915	2,124	1,156	54.4
All years..	10,007	4,629	46.3

With the exception of 1908, a year of depression when the proportion of rehiring was low, and 1911, a year of fair business when the proportion was high, these figures appear to follow the rule that the proportion of rehirings tends to increase in years of depression and to decrease in years of prosperity. In 1909, 1914, and 1915, poor

business years on the whole, the proportion of rehirings was high, while on the other hand, in 1910, 1912, and 1913, years of good business, they were low.

Among establishments not experiencing great seasonal fluctuations in business or not more or less isolated from other industries in location, the proportion of rehirings is very much less than in the above establishments. A Chicago metal working plant which hired 548 men in 1916 found that 76, or 13.9 percent, had been in its employ previously. Another large Chicago metal working plant found that one-sixth of the workers hired by it in 1916 had worked there previously. A telephone company which hired 330 one month of 1917 found that 48, or 14.5 percent, had previously been in its employ. On account of the great scarcity of help in the years to which these three instances relate, the figures are probably abnormally low.

An eastern street railway company found that of 1,443 conductors and motormen hired during 1915, 193, or 13.4 percent, had been previously employed by it. There was a marked difference in the proportion between the motormen and conductors. Of 358 motormen hired, 94, or 26.2 percent, had been previously employed by the company, compared with 99, or 9.1 percent, of 1,085 conductors.

In the recent arbitration of the wages on the Bay State Street Railway, it was stated that in the previous 3 years 14.3 percent of all employees resigning returned to service.[14] The total proportion of rehired employees would exceed this amount as the figure refers simply to the proportion of men resigning within the three year period who were rehired within the same period.

Sixty-six, or 11.2 percent, of 589 applicants for employment as trainmen with the Cleveland Street Railway

[14] Testimony of Professor A. S. Richey, *Electric Railway Journal*, v. XLV, p. 709.

Company in 1915, had had previous electric railway experience, but in what capacity was not stated.[15]

Among 476 men selected at random from the payroll of a Milwaukee metal working plant in 1913 and well distributed among all departments, the writer found that 137, or 28.8 percent, had been employed there previously. The proportion of rehirings to hirings to maintain this proportion on the payroll would of course be much below 28.8 percent.

To what extent the establishments studied by Mr. Alexander were affected by seasonal fluctuations is not known. He found that 11,580, or 27.2 percent, of 42,571 hired, had previously been employed in the establishment.[16]

The effect of the varying experience of new workers upon the breaking in cost is taken into account, as pointed out above, by taking the average breaking in cost of a number of workers hired for each operation or group of similar operations.

3. Estimates and data on cost of breaking in men.

Satisfactory estimates or studies of the cost of breaking in men are very scarce. Mr. M. W. Alexander made the estimates of the cost of breaking in various classes of employees in metal working industries[17] shown in Table XXVIII.

Mr. Alexander does not indicate the nature of the data on which his figures are based. Apparently in the case

[15] Cleveland Education Survey, *Railroad and Street Transportation*, p. 65, by R. D. Fleming.

[16] "Hiring and Firing: Its Economic Waste," *Proceedings of the National Machine Tool Builders' Association*, 1913, p. 97; *Annals of American Academy of Political and Social Science*, v. LXV, May, 1916, on "Personnel and Employment Problems," p. 136.

[17] "Hiring and Firing: Its Economic Waste," *Proceedings of the National Machine Tool Builders' Association*, 1914, pp. 98, 99; *Annals of Amer. Acad. of Political and Social Science*, v. LXV, May, 1916, on "Personnel and Employment Problems," p. 136.

TABLE XXVIII

MR. M. W. ALEXANDER'S ESTIMATES OF THE TURNOVER COST

Class of labor	New Employees						Rehired employees
	Hiring	Instruction	Wear and tear	Reduced production	Spoiled work	Total	
Highly skilled mechanics.	$0.50	$7.50	$10.00	$20.00	$10.00	$48.00	$10.00
Mechanics of less skill requiring a year or two to attain proficiency..	.50	15.00	10.00	18.00	15.00	58.50	20.00
Semi-skilled piece workers who can attain a fair proficiency within a few months.....	.50	20.00	10.00	33.00	10.00	73.50	35.00
Laborers.....	.50	2.00	1.00	5.00	.....	8.50	5.00
Clerical force.....	.50	7.50	1.00	20.00	.....	29.00	10.00

of some items he is making rather rough estimates. In regard to the cost of hiring he simply says, after enumerating some of the factors of cost, "an expense of fifty cents for each employee should be a fair estimate."[18] Instruction expense, he says, "may be *assumed* to be for each new employee in group A, . . . etc."[19] Any estimate of excess wear and tear on machinery he admits "must be a *mere guess,* but it may be conservative to assign ten dollars for each group A, B, and C employee."[20] Loss due to reduced production "may be *assumed* to amount to . . . etc.,"[21] and expense due to spoiled work "may be *assumed* to be . . . etc."[22] In regard to the cost of breaking in rehired employees he says, "making, however, a conservative *assumption,* the cost of hiring and training old employees may be placed at . . . etc."[23]

Mr. W. A. Grieves of the Jeffrey Manufacturing Company says that careful studies by the Rate Department indicate that the cost of breaking in men in his company averages about $81.10 per man.[24] Mr. Grieves has since written the writer, however, that $100 is probably nearer the average. What the average cost is depends of course upon the character of the men who are being hired, and, in the writer's opinion, $100 is an over-estimate for most factories in which, as shown in Chapter IV, the new men hired are preponderantly for unskilled work.

Mr. P. J. Reilly of the Dennison Manufacturing Company estimates that the expense of replacing experienced

[18] *Annals of the American Academy of Political and Social Science,* v. LXV, p. 138.

[19] *Ibid.,* p. 138. Italics are mine.

[20] *Ibid.,* p. 138. Italics are mine.

[21] *Ibid.,* p. 139. Italics are mine.

[22] *Ibid.,* p. 139. Italics are mine.

[23] *Ibid.,* p. 139. Italics are mine.

[24] "The Handling of Men." Address delivered before Executives' Club, Detroit Board of Commerce, Dec. 22, 1914. Privately printed.

hands in their industry (tags and paper novelties) "averages" $50.[25] The employment manager of a manufacturer of valves and fittings tells me that $25 is a "fair estimate" of the cost of breaking in semi-skilled piece workers in his establishment.

Mr. R. B. Stearns, vice-president of the Milwaukee Light and Electric Railway Company, made a study of the average annual cost properly chargeable to 433 trainmen, one year or less, for practice money, instruction, accidents, and damage to equipment. He found the average cost by trainmen in service one year or less was $370.43. This was $217.29 more than the average per trainman for the same items among the trainmen in service more than one year, which indicates that the cost of breaking in trainmen averages not less than $217.29 per man.[26]

Although few accurate data exist in regard to the entire cost of breaking in new men, accurate information in regard to certain items of cost is obtainable in some instances and indicates that the cost of breaking in new men is surprisingly large.[27]

[25] *Annals of the American Academy of Political and Social Science,* v. LXV, May, 1916, on "Personnel and Employment Problems," p. 93.

[26] Dr. Chas. H. Lemon: "Specifications for Railway Employes," *Area,* v. V, p. 869.

[27] A high cost of breaking in men is of course not necessarily an unfavorable sign. The cost of breaking in men is likely to be high in plants with efficient training departments, (1) because of the great expense of maintaining an elaborate training department and of giving close intensive supervision to new workers, (2) because, if the deficiency below the standard output, excess spoilage, etc., are considered part of the cost of breaking in men, these items are likely to be high when there is an efficient training department. An efficient training department results in the setting of high standards of the normal performance. The higher the standard of performance, the greater is the deficiency below it during the training period and the longer the training period.

The employment manager of a Chicago clothing firm says that the amount actually lost in paying day wages in excess of piece rate earnings (with the exception of a few simple operations) ranges from $20 to $75.

Mr. John M. Williams, of Fayette R. Plumb, Inc., has published interesting figures concerning the cost of day wages in excess of piece rate earnings which the firm pays until the workmen in a certain operation become proficient.[28]

The nature of the operation is not stated, but it is said to be a semi-skilled operation in which an average man becomes proficient in 12 weeks and self-supporting in 6. During the first week he is paid 30 cents per hour flat, in the second 20 cents per hour and piece earnings for what he produces, in the third week 15 cents per hour plus piece earnings, in the fourth 12 cents per hour and piece earnings, in the fifth 8 cents per hour and piece earnings, and in the sixth 5 cents per hour and piece earnings. On a basis of a 52½ hour week, the week at this shop, the day rate payments in the course of six weeks would amount to $47.25. From this must be deducted the amount of work produced in the first week for which the regular piece work rates are not paid. Crediting the man with this amount leaves the amount of day wages paid in excess of the amount paid at the regular piece work rates for all work produced, which, in the case of an average man, Mr. Williams says, amounts to about $42.00.

Girls learning to become telephone operators attend an operators' school for four weeks before attempting actual operating. During this period they were paid, in 1917, by a middle western company $7 per week, a clear loss to the company of $28. The highest wage paid to opera-

[28] "An Actual Account of What We Have Done to Reduce Our Labor Turnover," *Annals of American Academy of Political and Social Science*, v. LXXI, May, 1917, on "Stabilizing Industrial Employment."

tors by this company (with the exception of a differential of $1.50 to $2 added to every rate on the scale for evening or night work) is $13.50 per week. The traffic superintendent states that at the end of six months the average operator has attained only about half the speed which is regarded as standard. The new operator nevertheless is started at actual work at the beginning of the second month at $8 per week—considerably more than half the maximum wage. At the end of two months she receives $8.50, at the end of three months $9, at the end of four months $9.50, and at the beginning of the sixth month $10. Throughout this entire period she is receiving a wage much greater in proportion to the wage of the highest paid operators than her efficiency is to the standard efficiency.

The great variation in the length of time required to attain the normal output at different kinds of work is illustrated by the following studies made in a plant manufacturing electrical appliances. To indicate the time required to learn each job, one man who was distinctly above the average in ability was taken for each operation. His record of production was looked up, and it was ascertained how long he required to attain the output regarded as normal for an average good man.

In assembling a flat iron, a relatively simple operation, with no intricate details to learn and requiring practice and dexterity rather than knowledge, the normal output was attained on the thirteenth day. The percent of the normal attained on the previous days was as follows:

1st day	36 percent
2nd day	40 "
3rd day	56 "
4th day	63 "
5th day	66 "
6th day	73 "
7th day	80 "
8th day	83 "

9th day	86 percent
10th day	90 "
11th day	93 "

The assembling of electric stoves is a much more complicated operation. The article is more intricate and the operation requires not only more mechanical ability but also more intelligence and knowledge. It was impossible to ascertain the efficiency of men in this operation day by day. The assembling of three stoves was considered a good day's work. A new man might finish one stove and be far advanced on a second, but there was no way of telling precisely how far the second stove was completed. It was therefore necessary to take the number of stoves finished during longer periods.

The time required for the operative to reach the normal output of three stoves per day was 19 weeks. During the first two weeks he was approximately 33.3 percent efficient, during the second two, approximately 50 percent, during the second four, approximately 66.7 percent, during the next three, 80 percent, and during the last five weeks 90 percent.

An operative assembling an electric heater starting with 50 percent efficiency required ten days to reach the normal output. During that period his average efficiency was 75 percent.

A girl preparing and assembling the cord used on electrical appliances took 25 days to attain normal output. Her efficiency at the start and throughout the learning period was much greater than in the cases of the other operatives. By days it was:

First 3 days	83.3 percent
Second 3 days	87.5 "
7th day	90.0 "
8th day	83.3 "

5 days	87.5	percent
3 days	91.7	"
17th day	96.0	"
18th day	93.0	"
19th day	91.7	"
20th day	96.7	"
21st day	97.0	"
22nd day	93.0	"
23rd and 24th days	91.7	"
25th day	96.0	"

The excessive frequency of accidents among new men has been neglected in studies of the cost of the turnover. It is important not only because of the loss which it itself represents, but because it is an indication of the excess spoilage and excess wear and tear on machinery caused by the new man. In the absence of spoilage records and records of repairs to machinery, the accident record is the best index of the relative amounts of spoilage and breakage caused by new and experienced workmen, for the same lack of dexterity and knowledge of his apparatus and materials and of how to do the work, which causes the workman to injure himself, also causes him to injure his materials, tools, and machinery.

The Public Service Railway of New Jersey found that in the year 1911, 34.5 percent of their motormen and conductors had been in their employ for less than a year and that these were responsible for 61 percent of their accidents. The average cost per man of accident settlements, exclusive of the cost of maintaining the claim department, according to duration of employment in 1911 was:[29]

First year men	$202.98
Second year men	135.57
Third year men	83.23
Fourth year men	47.35

[29] *Electric Railway Journal*, v. XL, p. 820.

TABLE XXIX

ACCIDENT FREQUENCY AMONG ALL TRAINMEN AND TRAINMEN EMPLOYED LESS THAN SIX MONTHS, NEW YORK STATE RAILWAYS, ROCHESTER LINES [30]

Month	Percent of trainmen in service less than 6 months	Percent of all accidents experienced by trainmen in service less than 6 months	Accidents per 100 men, trainmen employed less than 6 months	Accidents per 100 trainmen, all trainmen	Percent of accidents per 100 trainmen of less than 6 months' employment to number per 100 for all trainmen
1913					
October....	22.66	35.16	67.5	43.4	155
November..	21.63	35.00	66.2	45.9	162
December...	20.10	34.60	83.5	48.5	172
1914					
January....	16.72	27.60	76.8	46.3	165
February...	14.60	23.31	78.0	48.9	160
March.....	14.18	21.92	83.4	54.0	154
April.....	13.02	18.30	50.0	35.7	140
May.....	10.58	20.43	94.0	48.7	192
June.....	11.16	20.98	96.4	40.6	188
July.....	10.40	18.24	78.5	44.7	175
August.....	9.87	19.30	63.8	33.1	193

[30] George Lawson, supervisor of employment and instruction, "Results Obtained by Instruction Department, New York State Railways, Rochester Lines." *Electric Railway Journal*, v. XLV, p. 368. Reprinted with permission.

Mr. P. T. Reilly, superintendent of transportation of the Scranton Railway Company, found that the average cost of damage per trainman according to the duration of service during a period of six years was as follows:[31]

First year men	$236.81
Second year men	146.63
Third year men	100.61
Fourth year men	95.00
Four years and over	48.87

Mr. George Lawson has published the data given in Table XXIX on the accident frequency among all trainmen and those employed less than six months upon the New York Street Railways, Rochester Lines.

Mr. W. J. Sherwood, superintendent of transportation of the Mobile Light and Railroad Company, found that in 1913, although only 43.6 percent of the trainmen had served less than a year, they were responsible for 57.25 percent of the expenditure for settlements, and that in 1914 although only 37.3 percent of the trainmen had served less than a year, they were responsible for 75.73 percent of the expenditure.[32] Mr. Sherwood also calculated the average cost of settlements per car-hour per man. The results show an almost uniform decline in costs as duration of service increases. The figures in detail are given in Table XXX.

In the Bay State Street Railway wage arbitration, the company presented data showing the number of reprimands and the number of accidents annually among trainmen, according to duration of service.[33]

[31] *Electric Railway Journal,* v. XLIII, p. 1083.

[32] Ibid., XLV, p. 912.

[33] Testimony of Professor A. A. Richey, reported in *Electric Railway Journal,* v. XLV, p. 709. The figures given here are taken from a chart published in the *Electric Railway Journal.* As it was impossible to read the chart with absolute accuracy, there are

Year of service	Average number of reprimands per trainman per year	Average number of accidents per trainman per year
1	3.1	1.55
2	2.65	0.83
3	2.03	0.87
4	1.8	0.82
5	1.3	0.65
6	0.8	0.55
7	1.3	0.90
8	1.0	0.67
9	0.95	0.50
10	0.7	0.55

TABLE XXX

COST OF ACCIDENT SETTLEMENTS PER TRAINMAN ACCORDING TO DURATION OF EMPLOYMENT, MOBILE LIGHT AND RAILROAD COMPANY, 1913 AND 1914 [34]

Period of employment	Percent of all trainmen employed for respective periods		Percent of cost of settlement attributable to workmen according to duration of employment		Average cost of settlements per car-hour per man according to duration of employment of trainmen	
	1913	1914	1913	1914	1913	1914
Less than 1 yr.	43.6	37.3	57.25	75.73	$0.0447	$0.0446
1 to 2 years...	16.0	17.6	29.18	15.11	0.0621	0.0189
2 to 3 years...	11.1	12.8	3.74	0.48	0.0114	0.00083
3 to 4 years...	8.0	9.5	4.26	1.89	0.0139	0.00433
4 to 5 years...	4.1	4.7	1.67	0.15	0.0139	0.00071
5 yrs. and over	17.2	18.1	3.90	6.64	0.0077	0.0081
Total.....	100.0	100.0	100.0	100.0	.....	.....

4. The turnover as a symptom of other costs.

Although the turnover is important as giving rise to a large cost to the employer, its prime significance is not as a cost in itself, but as a symptom of conditions which

undoubtedly errors in the hundredths figures, but the errors are too small to be significant.

[34] *Electric Railway Journal*, v. XLV, p. 912.

are sources of loss to the employer. The conditions which cause large turnovers cause other losses even more important than those incident to the turnover. Unsystematic hiring of men resulting in a poor selection causes large turnovers. It also results in the hiring of men of a poor grade and poorly adapted to the work, creating a less efficient force. The loss due to the lower efficiency of the force is probably more important than the loss due to the necessity of breaking in more new hands. Inadequate methods of teaching new men are important as a cause of the turnover but they are more important as a cause for low efficiency in the force as a whole. Foremen who do not understand how to handle men, bad physical conditions of work, mistaken wage policies, lack of opportunities for promotion, etc., all are important as causes of the turnover. They are more important, however, because they repel desirable men from seeking employment in the shop and because they reduce the efficiency of the men employed.

It is evident from this that the amount of money which can be profitably spent in removing the causes of the turnover is not necessarily limited by the cost of the turnover itself. It is limited by the cost of the turnover and all the other costs caused by the conditions responsible for the turnover. The amount that can be profitably spent upon an employment department is not simply the saving resulting from the greater stability of the force, but also the general increase in the efficiency due to selection of higher grade workmen better adapted to their specific jobs. The expenditure justifiable for an instruction department, for improvements in physical conditions in the plant, for higher wages, etc., is determined by the benefit resulting from the increased efficiency of the force as well as the saving in turnover costs.

CHAPTER VII

THE COST OF THE TURNOVER TO THE WORKMEN

1. The factors in the cost to workmen.

The cost of the turnover to workmen consists of the following principal items:

1. Loss of earnings during unemployment before obtaining a new position.

2. Expense and difficulty of obtaining a new job.

3. Deficiency in earnings while learning new job. This deficiency may be permanent. Older men especially find difficulty in obtaining work at which they can earn what they previously earned, even though their capacity may warrant continuation of their previous earnings.

4. Greater exposure to accident while learning new job.

5. Cost of moving if the new job necessitates the workman's moving his family to another section of the city or to a new locality.

6. Impairment of the development of his skill in his occupation by the interruption of employment and by the necessity of accepting work in other lines which do not give him experience of value in his regular occupation.

7. Demoralization from idleness or constant shifting, leading to discouragement, to loss of ambition, and often to dissipation, or to the development of the habits of floating and to an aversion to continuous employment.

Statistical evidence bearing on these items of cost is sadly lacking. A great service would be done by a study covering several thousand terminations of employment, showing the expense and difficulty of obtaining a new

position, the number of jobs applied for, the miles traveled and the lapse of time before a new position was obtained, the nature of work in the new position and its relation to the worker's previous experience, the earnings of the worker at the new position compared with those in the former position, the deficiency, if any, in his earnings during the learning period, the proportion of cases in which the new position proved unsatisfactory to the worker or the worker to the new employer and the reasons in each case, information similar to such as was obtained concerning the first position for all positions until a permanent one was obtained, the injuries to workmen while learning new jobs, what moving, if any, was involved on account of the different location of the new jobs and the expense, the effect of unemployment upon the worker's family, the means of tiding over the period of unemployment and low earning, inroads made upon savings, necessity of members of the worker's family taking work, of children leaving school, of family taking boarders, etc. Such data collected for several thousand terminations of employment occurring in a period when jobs were neither extremely plentiful nor extremely scarce would do much to awaken us to the serious effects upon workmen of the present almost disorganized state of the labor market, of the lack of efficient methods in selecting men and of adequate methods for training them, and to the great injury caused by unattractive jobs which constitute such a large proportion of the jobs in the market for men, and which are unattractive not because of inevitable characteristics of the work, but on account of such causes as piece rates cut to below a fair level or the neglect to mitigate fatigue or to protect the workers against heat, dust, fumes, etc. Such data would be a tremendous argument to employers to coöperate to make the public employment bureaus sources of general

information concerning all jobs in the market in the community, to develop more careful methods of selecting and especially of training men, and to mitigate in so far as possible the onerous conditions of jobs which, on account of their severity, are constantly throwing men back into the labor market, discouraged and usually little or no better off financially.

2. Unemployment before obtaining a new position.

The period of unemployment elapsing before another job is obtained varies greatly with the year, the trade, and the occupation of the worker. Extended unemployment is less likely to follow resignations than discharges or lay-offs because men do not resign when jobs are scarce unless they have a fairly definite prospect of a new job. The period of unemployment is especially likely to be long in the case of lay-offs because they often occur more or less simultaneously throughout a given industry.

The Bureau of Labor found in its study of unemployment in 1901 that inability to obtain work was the most important cause of unemployment. Among 24,402 family heads selected to represent workingmen in general, the Bureau found that 4,208, or 17.2 per cent., suffered 46,517 weeks of unemployment due to inability to obtain work. Only periods of unemployment of a week or more were counted. In 1,403 or one-third of the cases the period of unemployment was 13 weeks or more, in 2,850 or over two-thirds of the cases it was 8 weeks or more. The average period of unemployment due to inability to obtain work was 11.03 weeks. The number of weeks of unemployment due to inability to obtain work, per worker, for the entire group of 24,402 was 1.91 weeks. The workers suffering unemployment on account of inability to obtain work constituted 34.6 percent of all workers suffering unemployment, and the unemployment brought about by this

cause constituted 40.55 percent of all unemployment experienced by the group of 24,402 workmen.[1]

An interesting study of unemployment due to inability to obtain work is contained in the investigation of the Bureau of Labor Statistics of unemployment among women in Boston retail stores. The study covered the year ending July 31, 1914, a period in general of somewhat more unemployment than usual.

Among 1,156 women and girls who were regular employees in fifteen Boston retail stores, the Bureau found during the year ending July 31, 1914, 1152.75 weeks of unemployment due to inability to obtain work out of 57,469 5-12 possible weeks of employment. This is approximately one week per worker.[2]

Unemployment due to inability to obtain work was experienced by 178 workers, or 15.4 percent of the entire group, and the average time lost by those unemployed for this reason was 6.5 weeks.[3]

Unemployment due to inability to obtain work was the

[1] *18th Annual Report of the Commissioner of Labor*, p. 290.

[2] "Unemployment Among Women in Department and Other Retail Stores of Boston," U. S. Bureau of Labor Statistics, *Bulletin* No. 182, pp. 67-68.

The period of possible employment per worker was not 52 weeks because some workers did not enter industry until after the beginning of the year, while others ceased to be wage earners before the end of the year. In order to ascertain the period of possible employment, it was necessary to deduct the time before and after the workers entered industry.

These figures slightly overstate the proportion of time without a job among regular workers, for employees who had lost less than six days per year were excluded from the inquiry. These constituted 10.9 percent of all the women working as regulars or as regulars and extras, but it is not stated what proportion they constituted of those working as regulars only. (See *Bulletin* No. 182, p. 11.)

[3] *Ibid.*, p. 68.

third most important cause of unemployment experienced by them.[4] Forty-one and seven-tenths percent of the time in which these workers were without a job was due to inability to procure work.[5]

In what proportion of terminations of employment, unemployment due to inability to obtain work resulted, is impossible to say because the number of terminations of employment occurring among this group of workers is not exactly known. Nine hundred and sixty-six, or 83.6 percent of the group, worked only in one retail store during the year. One hundred and ninety, or 16.5 percent, held 425 positions, indicating at least 235 changes.[6] This does not indicate the total number of terminations, however, for some workers who had given up their positions in the previous year may have been without work at the beginning of the year and suffered unemployment due to inability to obtain work until they procured the first position held during the year. Others may have given up their positions before the end of the year without obtaining another position. Neither of these classes of changes is indicated by comparing the number of positions held with the number of individuals. It is not probable, however, that the number of terminations of employment exceeded the 235 known instances by more than one hundred and it is probably a conservative estimate that in at least half of the terminations, unemployment due to inability to obtain work resulted.[7]

Ibid., Table 5, p. 20.

[5] *Ibid.*, Table 4, p. 16. Unemployment was divided into two classes: due to worker being without a job; due to worker, although having a job, being unable to work.

[6] *Ibid.*, Table 2, p. 13, and Table 7, p. 23. Twenty-two terminations occurred because the worker retired from industry, but these of course do not concern us (p. 16).

[7] Since 178 workers experienced unemployment due to this cause.

Inability to procure work varied greatly among the different classes of workers. It was most important among the youngest, least skilled, and least experienced workers, such as cashiers, examiners, and stock girls, and among workroom employees (millinery, alteration, etc., workers) because of the highly seasonal nature of their work. The prevalency of unemployment due to inability to procure work among the different classes of workers is indicated in Table XXXI.

The most striking feature of this table is the large proportion of the workroom employees, stock girls, cashiers, examiners, and wrappers who report unemployment due to inability to procure work and the long average duration of the periods of unemployment suffered by these workers due to this cause.

The above, being a select group who did regular work only, shows an unusually low rate of unemployment due to inability to obtain work. Among a group of 346 who were employed as regulars and extras in stores, unemployment due to inability to obtain work was much more prevalent. In a total of 47.0 weeks of possible employment per individual, inability to obtain work caused an average of 12.8 weeks of unemployment per individual *or a loss of 27.2 percent of the time of possible employment.* It was by far the most important cause of unemployment, accounting for 75.9 percent of the total average unemployment suffered per individual.[8] The proportion of all workers who were unemployed for this reason is not given. The amount of shifting from position to position in this group was much greater than among the workers having regular employment only. Two hundred and fifteen, or 62.1 percent of the total number, worked in more than one retail store. The number of known positions held in industries other than retailing was 263, and the number of positions

[8] *Ibid.*, Table 48, p. 68, Table 12, p. 29, and Tables 5 and 6, p. 20.

TABLE XXXI

UNEMPLOYMENT DUE TO INABILITY TO PROCURE WORK AMONG 1,156 WOMEN AND GIRLS EMPLOYED AS REGULARS IN BOSTON RETAIL STORES BY OCCUPATIONS[9]

Occupation	Average wage per week	Number	Number reporting unemployment due to inability to obtain work	Percent of all workers in respective occupations reporting unemployment due to inability to obtain work	Weeks of unemployment due to inability to procure work	Weeks of unemployment due to inability to procure work per individual	Average duration of unemployment due to inability to procure work in weeks per worker unemployed for this cause	Percent of all unemployment due to inability to obtain work
Workroom employees	$9.73	76	9	11.8	153.7	2.02	17.1	19.1
Saleswomen	8.63	601	75	12.5	409.6	.68	5.5	10.1
Office employees	7.54	167	13	7.8	60.3	.36	4.6	11.0
Stock girls	5.94	25	5	20.0	68.2	2.73	13.6	41.2
Examiners, cashiers, bundlewrappers	4.25	252	68	27.0	377.25	1.49	5.6	25.0
Others	7.56	35	8	22.9	83.75	2.39	10.5	40.7
All occupations	7.59	1,156	178	15.4	1,152.75	.99	6.5	15.8

[9] Based on data in *Bulletin* No. 182, Table 48, p. 68, Table 12, p. 29, and Tables 5 and 6, p. 20.

held in stores other than the first store was 263, a total of 526.[10] Not all of these positions, however, involved giving up a previous position, for 38 women reported extra and regular work at the same time. The number of extra positions held by them while doing regular work, however, is not stated. Allowing for the unknown terminations of employment, it is probable that the total number of changes in this group was over 600 and that the approximate 4,427 weeks of unemployment caused by inability to procure work were distributed over at least 600 changes of employment and possibly many more.[11]

The figures for unemployment due to inability to find work given above probably do not include all the unemployment due to this cause. In many instances where the original cause of the unemployment was sickness, home responsibilities, or simply the desire of the worker for a vacation, the period of unemployment was undoubtedly prolonged by the worker's inability to obtain work when desired. It is not stated what steps were taken by the investigators to separate the total period of unemployment into that due to the original cause, such as sickness or desire for a vacation, and that due to inability to obtain work when desired. Extremely precise separation would seem to be impossible on account of the difficulty of workers' recalling when they began to search for work.

The third group of workers investigated in this study comprised 261 women and girls who had extra work only. This group contained a large number who did not need work or who were occupied at home or at school. Of 71, out of the group of 261 who needed and were seeking

[10] *Ibid.*, p. 47.

[11] The total number of weeks of unemployment due to inability to obtain work is not given. The above figure is arrived at by multiplying 12.8 (which is 75.9 percent of 16.9, the average unemployment due to all causes) by 346, the number of workers.

work and were not otherwise occupied, 28, or 39.4 percent, gave as the reason of unemployment inability to find work. Eighteen, or 25.3 percent, would accept work in stores only, 9, or 12.7 percent, lacked persistent effort, 10, or 14.1 percent, wished work in certain occupations only or in certain establishments, and only 6, or 8.5 percent, were handicapped by youth.[12] These figures indicate the importance of inability to obtain work among a group of employees probably below the average in capability.

A less satisfactory study of unemployment was made by the United States Bureau of Labor Statistics among the women in Indiana mercantile establishments and garment factories. The amount of unemployment due to inability to find work is not given separately. The unemployment due to lay-offs is given, but the amount due to temporary lay-offs not involving a termination of employment and the amount due to the lay-offs which involved a termination of employment are not given. It is probable that considerable unemployment due to inability to find work is included in the unemployment due to voluntary vacation and to miscellaneous personal causes, such as home responsibilities and illness.

The unemployment due to lay-offs among the mercantile employees is extremely slight, and even were it all due to the inability of workers permanently laid-off to find work, would be an item of minor importance. The number of workers affected was only 20 of 711, or 2.8 percent. The weeks of unemployment were 206 of 33,929 1-6 possible weeks of employment, or 0.61 percent. The average period of unemployment, 10.3 weeks, however, was an appreciable amount to those suffering it.[13]

[12] U. S. Bureau of Labor Statistics, *Bulletin* No. 182, p. 60.

[13] "Hours, Earnings, and Conditions of Labor of Women in Indiana Mercantile Establishments and Garment Factories," U. S. Bureau of Labor Statistics, *Bulletin* No. 160, pp. 50 and 52.

In the more seasonal garment industry, lay-offs were 180 out of 517 women. In other words 34.8 percent suffered an average of 3.6 weeks' unemployment due to lay-off. The total unemployment due to lay-off, 644 1-6 weeks, constituted 2.52 percent of the possible weeks of employment.[14]

A study of the Bureau of Labor Statistics of 34 cutters and 34 pressers in the New York cloak, suit and skirt industry illustrates the importance of inability to find work in highly seasonal industries.

The time in which these workers had no employment in their trade is tabulated by four week periods—1 to 4 inclusive, 5 to 8 inclusive, etc. Twenty-five of the 29 cutters and 25 of the 30 pressers reporting, were without work at their trade for more than twelve weeks. In order to ascertain the approximate average period of unemployment at their trade, we may conservatively assume that the average length of the instances in each period of classification was half a week less than the median point in the classification, that is the average of the cases of from 1 to 4 weeks in length was 2 weeks, of the cases from 5 to 8 weeks, 6 weeks, etc. The approximation of the average period thus obtained for the 29 cutters is 18.8 weeks, and for the 30 pressers 20.9 weeks per individual.[15] As 19 of the 29 cutters and 22 of the 30 cutters had no work in their occupation for more than 16 weeks, each of these approximations is undoubtedly below the actual average. For 29 cutters reporting, the number of periods of unemployment at their occupation was 78 and for 27 pressers reporting, 63.

Twenty-four cutters and 27 pressers reported inability

[14] *Ibid.*, pp. 85 and 88.

[15] "Wages and Regularity of Employment in the Cloak, Suit and Skirt Industry," U. S. Bureau of Labor Statistics, *Bulletin* No. 147, p. 134.

to find other employment when thrown out of their positions in the industry. One cutter reported "he was helping out his father," one did clerical work, three worked on raincoats, one on shirtwaists, three as salesmen in retail stores, and one as a traveling salesman. Two pressers engaged in "peddling," one worked at odd jobs, two worked for contractors, one worked at pressing piece work, one in a store. The remaining 20 were idle. Two reported that their wives took in washing.[16]

Thirty-one cutters held 125 jobs, this indicating at least 94 changes or an average of 3 changes per cutter, while 29 pressers held 61 jobs, this indicating at least 32 changes.[17] These figures include only the number of jobs held as cutters or pressers. They do not include temporary jobs held in other occupations during periods of unemployment at the regular occupations.

These changes do not indicate all the possible terminations of employment resulting in inability to find work. Since, however, among the cutters with a minimum of 94 changes of job, there were 78 periods of unemployment reported, and since, among the pressers with 32 changes of job, there were 63 periods of unemployment reported, it is evident that the number of cases in which termination of employment did not result in unemployment were few, particularly among the pressers.

Children, especially those below sixteen years of age, suffer from unemployment due to inability to obtain work because of the temporary or seasonal character of the work which they do and because of the few positions which, on account of their lack of strength and their inability to assume responsibility, they are able to fill.[18]

[16] *Ibid.*, p. 135.

[17] *Ibid.*, p. 134.

[18] For discussion of seasonal character of children's work see above, p. 100.

TABLE XXXII

PROPORTION OF TIME OUT OF SCHOOL SPENT AT WORK BY 3,679 CHILDREN [19]

Time out of school	Total	Full time	Per-cent	Over ¾	Per-cent	¾ to ½	Per-cent	½ to ¼	Per-cent	¼ and less	Per-cent
1,955 boys											
Total	1,955	294	15.0	385	19.7	524	26.8	478	24.4	274	14.0
1 mo. to 12 inc.	844	175	20.7	82	9.7	206	24.4	244	28.9	137	16.2
13 mo. to 24 inc.	702	73	10.4	172	24.5	199	28.4	151	21.5	107	15.3
25 mo. to 36 inc.	302	36	11.9	105	34.8	74	24.5	64	21.2	23	7.6
37 mo. to 48 inc.	79	5	6.3	20	25.3	34	43.0	15	19.0	5	6.3
Over 48 months	28	5	17.9	6	21.4	11	39.3	4	14.3	2	7.1
1,724 girls											
Total	1,724	189	11.0	279	16.2	417	24.2	486	28.2	353	20.5
1 mo. to 12 inc.	728	110	15.1	78	10.7	154	21.2	219	30.1	167	22.9
13 mo. to 24 inc.	618	51	8.3	100	16.2	157	25.4	172	27.8	138	22.3
25 mo. to 36 inc.	281	20	7.1	74	26.3	77	27.4	76	27.0	34	12.1
37 mo. to 48 inc.	69	6	8.7	21	30.4	22	31.9	10	14.5	10	14.5
Over 48 months	28	2	7.1	6	21.4	7	25.0	9	32.1	4	14.3

[19] Based on data in *Report of Bureau of Vocational Guidance, Chicago Public Schools,* Table 15, pp. 40-41.

The importance of inability to obtain work as a cause of unemployment among children is indicated by the proportion of the time spent at work since leaving school and seeking work. A large part of the unemployment was no doubt due to sickness, being needed at home, etc., but the amount of unemployment is so large as to indicate that there must have been considerable inability to find work. Data on this subject collected by the Bureau of Vocational Guidance from the Chicago public schools show that, of 1,955 boys who had been out of school from one month to over four years, 1,276, or nearly two-thirds (65.3 percent), had not been employed over three-fourths of the time, and 752, or 38.5 percent, had not been employed over half the time. Among 1,724 girls, 1,256, or nearly three-fourths (72.9 percent), had been employed not more than three-fourths of the time, and 839, or nearly one-half (48.6 percent), had not been employed more than half the time. The details are shown in Table XXXII. The demoralizing effect of so much idleness upon children in this formative period must be tremendous. Yet it is doubtful if it is scarcely less demoralizing than the conditions under which many of them work.

As industrial experience increases, the amount of unemployment decreases. This is shown by the following summary of Table XXXII:

Time out of school	Percent of all boys employed ½ of time or less since leaving school	Percent of all boys employed from ½ to ¾ of time since leaving school	Percent of all boys employed over ¾ of time since leaving school
	1955 boys		
1 mo. to 12 mo. inc....	45.2	24.4	30.4
13 mo. to 24 mo. inc...	36.7	28.4	34.9
25 mo. to 36 mo. inc...	28.8	24.5	45.7
37 mo. to 48 mo. inc...	25.3	43.0	31.9
Over 48 months.....	21.4	39.3	39.3

1724 girls

1 mo. to 12 mo. inc.....	53.0	21.2	25.8
13 mo. to 24 mo. inc...	50.1	25.4	24.5
25 mo. to 36 mo. inc...	39.1	27.4	33.4
37 mo. to 48 mo. inc...	28.9	32.0	39.1
Over 48 months.....	46.5	25.0	28.5

Old age is one of the most serious obstacles to finding employment. The loss of his job by a semi-skilled worker over forty or forty-five is likely to mean a permanent reduction of his earning capacity, for he will have great difficulty in obtaining a job as good as his previous one. The employment manager of a Chicago printing establishment, in January, 1917, when there was an acute scarcity of labor, received over 200 letters of response to an "ad" for a man past 50 to sit at their information desk. The men responding were of a remarkably good type. Two months later he was using the same file of letters to fill vacancies and stated that the applications were still almost as "alive" as when first received, although applications from younger men for other jobs at that time were "dead" almost immediately because of their securing other employment.

Lack of central sources of information concerning opportunities for work compels workmen to go from plant to plant almost blindly in search of work and to accept the kind of job they can get rather than the kind of job which they wish, because they do not know where work of the kind they desire can be obtained. The result is often a dissatisfied workman and a termination of employment. The logical means for supplying a central source of information concerning the opportunities for work is a central public employment office. Such offices are entitled to coöperation from employers in keeping them posted from day to day of the needs of each plant in order that the

wasteful and unjust system which compels workmen to go blindly from plant to plant in search of work may be eliminated.[20]

3. The difficulty of obtaining a satisfactory job.

The difficulty which a workman who loses his place has in obtaining work consists not alone in the fact that he has to sell his services in an inadequately organized market in which information concerning sales opportunities is sadly lacking. The jobless man's difficulty is greatly accentuated by the fact that the least satisfactory jobs are those most frequently vacated. The ones which are vacant, therefore, are very largely a residue consisting of the lowest paying, most onerous, and most disagreeable. When the jobless man obtains work, therefore, he is very likely to find his job far from satisfactory. Several changes may be necessary before he finally obtains satisfactory work.

The enormous number of changes caused by unattractive jobs was pointed out above (pp. 80-82). Add to the unattractive jobs the large number of temporary jobs and it becomes clear why the fact that two-thirds of the men hired leave within a year of being employed[21] is not conclusive evidence that the turnover is caused largely by habitual floaters.

The jobs which are so unattractive that men cannot be held at them are, in many cases, not inevitably so, but are un-

[20] One of the difficulties in obtaining the coöperation of large employers in furnishing a clearing house of employment information is that in normal times they usually have so many men at their gate or on their application lists that they can fill almost all vacancies from these before any one sent out by a central agency could reach them. This, of course, is not true of small employers. Some employers, too, do not wish to announce the kind of work for which they are hiring men, for they find that when the men know the kind of jobs which are open they make fictitious claims of previous experience at such work.

[21] *Supra*, pp. 45-46.

attractive simply because of neglect to remedy easily alterable conditions. The piece rate may be too low, or inadequate protection may be given the workers against heat, wetness, dust, fumes, etc., or fatigue relieving devices may be lacking. The large number of cases in which the job which the workman obtains, often after long search, proves unattractive is one of the most tragic features of the turnover.

4. The turnover as a demoralizing influence.

In considering the effect of the turnover upon the morale of workmen, it must be remembered that in most factories two-thirds or more of the force is relatively stable, having worked in the establishment a year or more. It must be remembered also that precisely where impairment of morale would do the most injury—among the skilled and the higher grades of semi-skilled workers—the rate of turnover is least. For these reasons it is easy to over-estimate the effect of the turnover upon the morale of the force. In seasonal industries and among the common laborers, lower grade semi-skilled laborers, and youths and girls, however, the effect of the turnover upon morale is important.

The turnover exerts a demoralizing effect upon workmen because:

a. Frequent loss of position with the resulting loss in earning power, rendering it difficult for the worker to save and to get ahead, discourages and embitters him, destroys his ambition, and causes him to cease to make an effort to better his lot.

b. Laziness and shiftlessness are habits, just as industriousness is a habit. The idleness which frequently intervenes before a worker obtains a new job tends to develop lazy, shiftless habits.

c. Changing from job to job may be a habit. Irregular employment tends to create this habit and to cause workers to become unwilling to remain at a job for a long period.

It is noteworthy that in industries where the work is unsteady the workers are far less steady than the work. The habit of floating affects the attitude of workers toward their work and also their efficiency as workmen. When a floater takes a job, he does it not with the intention of remaining at it permanently, but with the rather definite expectation of leaving within a short time. The fact that he does not regard the job as a permanent one renders him more or less indifferent about learning it well and making a good record. He is little concerned if the employer finds his services unsatisfactory. It is hopeless to attempt to arouse his interest in his work or to earn his loyalty.

Far more important than as a *cause* of demoralization among workers is the turnover as a *symptom* of demoralization which exists for other reasons. Particularly significant is it as a symptom of conditions which give rise to unsatisfactory industrial conditions and relations and which naturally sap the morale of the men.

Other costs of the turnover to workmen such as lessened earnings and greater accident hazard during the learning period are discussed above in connection with the cost of the turnover to employers.

5. The turnover is not always a cost to workmen.

Important to workmen as are many costs involved in the turnover, it is far from always being a cost. If a man is unfitted for a given job, it is obviously no benefit to him to remain at it. The quicker he leaves it and finds one for which he is fitted, the better for him and for society.

Often the reason for a change is the desire of the workman to get a better job. Under the prevailing haphazard systems of promotion this frequently is the only method by which he can better his condition. Often he has secured a new job before leaving his old one and so undergoes no unemployment.[22]

[22] An interesting and important study is, in how many cases do

6. The turnover as a symptom from the standpoint of workmen.

From the standpoint of workmen as from the standpoint of employers, the turnover is probably more important as a symptom than as a cost in itself. It is a symptom of inefficient hiring methods which place workmen in positions for which they are unfitted or for which they are less adapted than for other positions; it is a symptom of severe and disagreeable work; of bad working conditions; of piece rates below a fair level; of inadequate methods of instructing workmen in the job when hired; of defective management resulting in friction, inefficiency, and often open conflict; of lack of opportunity for workmen to advance on the basis of merit; of poor planning and organization of the work in individual establishments resulting in temporary jobs, an unduly high peak load, and an unduly low load; and of lack of coördination and coöperation between industries whose slack and busy seasons dovetail.

the changes of position in which the worker gives the reason "better job" or "better opportunity" elsewhere really result in the worker's bettering his condition *permanently?* To what degree are the long run chances of advancement sacrificed to immediate considerations such as wages, gentility of the work, etc.? There is no doubt that the proportion is large, although an intensive study of this problem has never been made.

Another question is, which workers advance the more rapidly, those who remain with one employer or those who change about? In the Report on Women and Child Wage Earners (61st Congress, 2nd session, *Senate Document*, No. 645, v. VII, p. 181) figures are given purporting to show that children who changed employers advanced in wages more rapidly than those who did not change, but the figures are unreliable because of difference in industrial experience between the two groups, those who changed being more experienced, and because the geographical distribution is different, the children who changed being composed of a larger proportion of northern children, the children who did not change of a larger proportion of southern children.

PART III

THE CAUSES OF THE TURNOVER

CHAPTER VIII

SURVEY OF THE CAUSES OF THE TURNOVER

1. Classification of the causes of the turnover.

The causes of the turnover fall into eight principal groups. These groups and the principal causes falling within each are as follows:

I. Reduction in the quantity of work due to:
   1. Industrial depression.
   2. Seasonal fluctuations in volume of business.
   3. Completion of temporary rush jobs.
   4. Changes in industrial processes.
   5. Discontinuance of the business, such as failure.

II. Causes pertaining to the job:
   1. The nature of the work.
   2. Wages.
   3. Hours of work.
   4. Time of work, such as night work.
   5. Continuity of work, such as Sunday work.
   6. Unsatisfactory opportunities for advancement.
   7. Inaccessibility of the working place to the workman's home.

III. Causes pertaining to the methods of handling men.

IV. Causes pertaining to fellow workmen.
   1. Disagreeable relations with fellow workmen.
   2. Terminations of employment in order to accompany friend who is leaving.

V. Causes pertaining to the worker.
   1. Wanderlust.

2. Desire for vacation or change of work.
3. Ill health.
4. Injury.
5. Superannuation.
6. Death.
7. Marriage.
8. Workman undesirable:
   a. Unadapted to the work.
   b. Unreliable.
   c. Lazy.
   d. Intemperate.
   e. Insubordinate.
   f. Trouble maker.

VI. More attractive opportunities elsewhere.

VII. Causes pertaining to the attractiveness of the community as a place of residence.

Under this head fall changes due to dislike of small isolated localities or of large cities, or due to unattractiveness of the climate.

VIII. Changes due to the family of the worker.

Sickness in the family of the worker, dislike of the community by the family, in the case of children living at home, or moving of the family may cause the worker to quit.

2. The relative importance of resignation due to more attractive opportunities and to dissatisfaction.

The most important classification of the causes of resignations is into resignations on account of better opportunities elsewhere, resignations on account of dissatisfaction, and resignations due to conditions not directly related to working conditions. It is highly important to the employer to know in what degree conditions in his plant are so unsatisfactory as to cause men to leave, in what degree conditions in other plants are so much superior as to attract men from his plant, and in what degree resignations are not at-

tributable either to unsatisfactory working conditions in his plant or to more attractive working conditions elsewhere. It is important also to the public to know in what degree intolerable industrial conditions cause men to resign, in what degree resignations are due to workmen's taking advantage of opportunities to better their condition, and in what degree resignations are not due directly to the workmen's attitude toward their jobs.

At the end of this chapter are tables showing the proportion of resignations due to these three classes of causes in a number of plants. From the standpoint of accuracy these figures leave much to be desired. The reasons for resignation with the exception of three groups of workers are those given by the worker to the timekeeper, paymaster, employment manager, or other representative of the firm who interviewed the workmen on leaving. In the case of the women in bookbinding (Group K) the reasons are those obtained by Miss Van Kleeck of the Russell Sage Foundation from the workers sometime after leaving; in the case of the women in the dressmaking industry (Group O) the reasons were obtained from the workers by Miss Allinson; and in the case of the children in Group P the reasons were obtained by the Bureau of Vocational Guidance of the Chicago Public Schools. In many instances the reason given by the workman was undoubtedly fictitious. The workman who is leaving feels that it is none of the employer's business why he leaves and is apt to give a non-committal general reply such as "better job," "too hard," "didn't like it." The worker also has in mind the possibility that he may wish to return to the plant in the future or that the firm of which he seeks work may ask concerning his record from his previous employer. He will, therefore, be unwilling to give the real reason for leaving if he believes it might antagonize the employer toward him.

The number of workers who leave for various reasons of

dissatisfaction is probably greater than the number who give this reason, and the number who give the reason "better job" is probably greater than the number who have already secured a job or who are attracted by a definite possibility of a job which seems more desirable to them. Many men give the reason "leaving town," which is meaningless. Often they are not leaving the city at all. Many companies require men quitting without notice in the middle of a pay period to wait until the end of the period for their pay. In order to induce the foreman to have them paid at once the men often say they are leaving town. As the amount of misstatement is probably much the same in all plants and among all classes of workers, the value of the figures for comparative purposes is not destroyed by these inaccuracies.

The distinction between resignations due to better opportunities and due to dissatisfaction has been criticized on the ground that it represents no distinction at all. It is said that if a man has a chance to better himself he is also dissatisfied with his present job, and if he is dissatisfied with his present job he leaves also because of a better opportunity. There are border line cases in which it is impossible to know which motive predominates. Nevertheless there is a substantial difference between men who leave because of a better opportunity and those who dislike their jobs so intensely that they are unwilling to remain at them. Those who give "better job" as a reason for leaving are attracted by a definite place. They may have no objection to the job which they are leaving. They leave simply because the new opportunity is more attractive. The men who leave because dissatisfied usually are not attracted by any particular opportunity for usually they have no definite job in prospect. They leave because they are so dissatisfied with their job that they feel certain of being able to obtain a better one.

The two classes of resignations are also symptoms of different industrial conditions. Resignations due to more

attractive opportunities are symptoms of favorable industrial conditions, such as good demand for labor creating opportunities for labor to advance.[1] Resignations due to the pressure of intolerable working conditions clearly are symptoms of unfavorable industrial conditions.

Difficulty arises in classifying some of the causes of resignation. The reasons "going farming" and "out of door" work have been classified as better opportunities. In many cases they are equivalent to a vacation for the worker for they are his means of obtaining an outing and properly to be classified with "vacation" under miscellaneous causes. The reason "to stay at home" covers a number of separate causes. It may mean that the worker is needed at home in which case it is properly classified with the miscellaneous causes. It may mean that the worker is tired of working and does not have to work, in which case it is classified under dissatisfaction. It is frequently given by children as a fictitious non-committal answer. I have classified the reason as if it were always genuine under the miscellaneous causes.

The proportion of resignations due to dissatisfaction usually is low in plants having a low turnover and exceptionally good working conditions and high in plants having a high turnover and less satisfactory working conditions or where the work by nature is hard or disagreeable. The proportion of resignations due to more attractive opportunities is high in plants with low turnover and good working conditions and low in plants with a high turnover and less attractive work or working conditions.

[1] This of course is not saying that the jobs which workers consider better opportunities are always in reality such, and does not deny that there is much ill advised changing, especially among youths and girls. In the main, however, the fact that workers have the opportunity to take positions which they consider preferable to the jobs they have indicates a desirable social condition.

In other words, where conditions are attractive not only do fewer men resign, but those who do, resign *not because of dissatisfaction but because of still more favorable opportunities elsewhere.* This is illustrated by Table XXXIII which shows the relative number of resignations due to more attractive opportunities and due to dissatisfaction, according to the size of the turnover.

The establishments in the table are divided into two classes, those with large turnovers and those with small turnovers. Almost without exception in the establishments with high turnovers, resignations due to dissatisfaction exceed resignations due to better opportunities, and *vice versa* in the establishments with low turnovers. The average ratio of resignations due to dissatisfaction to resignations due to better opportunities among the establishments with high turnovers is 56.5 to 43.5 or 1.30 to 1, whereas among the establishments with low turnovers the average ratio is 33.2 to 66.8 or 0.50 to 1.[2]

The only exception to the rule that where working conditions are unusually attractive and the turnover low, resignations due to dissatisfaction are less than resignations due to better opportunities is establishment A, a metal working plant in which conditions are exceptionally good and which has held its turnover down to a remarkably low rate for a long series of years. The large proportion of resignations due to dissatisfaction may be due to the large part of the force employed in the foundries where it is difficult to break in new men unused to the heat and heavy work.

[2] In calculating these ratios, to avoid giving undue weight to plants D, B, and H, for which figures for several years were available, an average was first obtained of the ratios in each plant for all years for which figures were available and this average ratio was used to represent the plant in calculating the average ratio for all plants. Plant L was not included in calculating the ratios for all plants, as the number of resignations from this plant on account of dissatisfaction is not known.

TABLE XXXIII

RELATION BETWEEN THE PROPORTION OF RESIGNATIONS DUE TO BETTER OPPORTUNITIES AND TO DISSATISFACTION AND THE RATE OF TURNOVER

Plant (*a*)	Year	Turnover rate	Number of resignations due to better opportunity and to dissatisfaction	Number of resignations due to better opportunity	Percentage which resignations due to better opportunity bear to all resignations due to better opportunity and dissatisfaction	Number of resignations due to dissatisfaction	Percentage which resignations due to dissatisfaction bear to all resignations due to better opportunity and to dissatisfaction
Establishments with high turnover rate.							
G	1915-16	572.9%	....	....	26.2	....	73.8
I	1915	134.1	....	....	24.0	....	76.0
B	1913	114.8	387	184	47.5	203	52.5
M	1915-16	114.7	103	66	64.1	37	35.9
D	1913	105.8	96	55	57.3	41	42.7
	1914	59.8	68	35	51.5	33	48.5
	1915	57.0	77	53	68.8	24	31.2
	1916	102.8	245	113	46.1	132	53.9
Establishments with low turnover rate and exceptionally good working conditions.							
A	1913	51.3	1,035	429	41.5	606	58.5
	1914	18.4	288	139	48.3	149	51.7
	1915	21.4	416	216	52.0	200	48.0
	1916	70.2	2,377	593	24.9	1,784	75.1
F	1914-15	51.8 (*b*)	75	72	96.0	3	4.0
	1915-16	....	137	123	89.8	14	10.2
J	1915	42.2	27	16	59.3	11	40.8
L	1912	36.8	101 (*c*)	46	45.5 (*d*)	....	....
	1913	31.5	44 (*c*)	24	54.5 (*d*)	....	....
	1914	28.2	34 (*c*)	27	79.4 (*d*)	....	....
	1915	17.8	26 (*c*)	24	92.3 (*d*)	....	....
N	1915	28.0	129	96	74.4	33	25.6
H	1915	18.8	217	143	65.9	74	34.1

(*a*) The letters designating the different plants refer to the plants as lettered in Table XXXVI at the close of this chapter.

(*b*) Turnover rate for 1913. Complete figures for 1914-15 and 1915-16 are not available. In 1914-15 the turnover was below that of 1913, in 1915-1916 substantially the same.

(*c*) Figures are for the number of *all* resignations due to other than personal causes.

(*d*) Percentage figures are the percentage of resignations due to more attractive opportunities to all resignations for non-personal causes.

According to the employment manager approximately one-third of the entire force in this plant is employed in the foundries.

There are two exceptions to the rule that where the turnover is high resignations due to dissatisfaction exceed resignations due to better opportunities. The first is establishment F, an agricultural implement factory with a pronounced slack season during July and August. The superintendent says that a considerable number of workers leave during and immediately preceding these months on their own volition to go into other work, returning at the end of the slack season. These men know the slack season is coming and often secure jobs in advance of leaving. In such cases they are likely to give as their reason "another job" and are classified as resigning on account of a better opportunity.

The second exception, establishment D, manufactures mining machinery. A large proportion of the men are high grade semi-skilled men. These men are able to find more advantageous employment than less skilled men. It is possible that this accounts for the relatively large proportion of resignations due to better opportunity, although this cannot be proven.

A most interesting example of the increase in the proportion of resignations due to more attractive opportunities as conditions in the plant improve is the printing and binding establishment L. During the period under consideration, "scientific management" was being installed in this plant. Conditions of work and particularly wages were being greatly improved. The total number of resignations during the period showed a very marked decrease falling from 151 in 1912 to 36 in 1915. As conditions improved, a marked change occurred in the causes of resignation. Those due to other causes than more attractive opportunities elsewhere decreased steadily. By 1915, 92.3 percent of the few who

resigned because of directly industrial causes or causes not specified left because of more attractive opportunities elsewhere. The resignations on account of dissatisfaction are not specified in this plant but are included among the miscellaneous causes. Resignations due to dissatisfaction probably constitute the greater part of the resignations due to miscellaneous reasons. From 1912 to 1915 resignations due to miscellaneous reasons decreased from 44.4 to 5.6 percent of all resignations, indicating conclusively a large decrease in the number of resignations on account of dissatisfaction in comparison with the resignations on account of better opportunities.

Another group of workers should be added to the groups of workers showing a high turnover and also a high percentage of resignations due to dissatisfaction. This is group P of 1473 children whose reasons for resignation were ascertained by the Chicago Bureau of Vocational Guidance. These children, who in most cases were between 14 and 16 years of age, received low wages. Much of the work, particularly that done by the girls, such as wrapping, packing, labeling, counting, sorting, inserting, folding, pulling bastings, etc., was highly monotonous. The children's lack of strength and the fact that they are unused to industrial work tended to make the tasks onerous and disagreeable to them. As was pointed out above,[3] the rate of change among these children is high although the precise turnover rate cannot be stated. Fifty-two percent, however, left their first position within four months and nearly three-fourths (74.1 percent) within a year of being employed.[4] The proportion of resignations due to causes such as "wages too low," "hours too long," "work too hard," or "didn't like it," is naturally large. Resignations from the first position on account of

[3] Pp. 77-82.

[4] See above, p. 80.

dissatisfaction were 3.72 times as numerous as resignations due to more attractive opportunities.

It is probable that the proportion of resignations on account of dissatisfaction is larger in case of the first job held by children in industry than in the case of later jobs. This is because the children know less what kind of work they desire, because they have not become disciplined to work and find it especially onerous at first, and because children without industrial experience are less able to obtain as attractive jobs as those who are more experienced.

It is probable that children resign more frequently on account of dissatisfaction than do adults. They have not become hardened to the grind, monotony and routine of work as have adults. They more insistently demand interest and variety in their work and they do not have the necessity of providing for a family to hold them to a job which they do not like.

The meager data available tend to indicate that the proportion of resignations due to better opportunity tends to increase as the skill of the men increases and the proportion of resignations due to dissatisfaction tends to increase as the skill of the workmen decreases. This is to be expected, as the work and working conditions of the less skilled men are as a rule less attractive than the work and working conditions of skilled men, and as unskilled and slightly skilled men, being easier to replace, are treated with less consideration. Table XXXIV, showing the reasons for resignation in a Milwaukee metal working plant according to the degree of skill, illustrates the tendency for resignations on account of better opportunities to vary directly and resignations on account of dissatisfaction to vary inversely with the skill of the workers.

The only exception to the rule that the proportion of resignations due to dissatisfaction increases as skill decreases is the semi-skilled machine laborers of the better

TABLE XXXIV

RELATIONSHIP BETWEEN THE PROPORTION OF RESIGNATIONS DUE TO DISSATISFACTION AND TO BETTER OPPORTUNITIES AND THE SKILL OF THE WORKERS IN A MILWAUKEE METAL WORKING PLANT FROM JANUARY 1ST TO JULY 1ST, 1913

Class of workmen	Number of resignations for all causes	Number of resignations on account of dissatisfaction or better opportunity	Number of resignations due to dissatisfaction	Percentage of resignations due to dissatisfaction to all resignations due to dissatisfaction and better opportunity	Number of resignations due to better opportunity	Percentage of resignations due to better opportunity to all resignations due to better opportunity and to dissatisfaction
All classes	819	387	203	52.5	184	47.5
Skilled mechanics	30	14	1	7.1	13	92.8
Semi-skilled machine hands, better grade	150	78	50	64.1	28	35.9
Semi-skilled non-machine hands, better grade	103	53	22	41.5	31	58.5
Semi-skilled machine hands, poorer grade	89	27	13	48.1	17	51.8
Semi-skilled non-machine hands, poorer grade	150	81	39	48.2	42	51.8
Molders	20	10	3	30.0	7	70.0
Foundry laborers	52	18	13	72.2	5	27.8
Other common laborers	225	106	62	58.5	44	41.5

grade who show a greater percentage of resignations due to dissatisfaction than any other group.

A similar relationship between skill and the proportion of resignations due to better opportunity is shown by data collected by the writer from a Chicago metal working plant and shown in Table XXXV.

The number of resignations due to better opportunity consistently declines in relation to the number due to dissatisfaction, as skill decreases.

It is to be expected that the proportion of workers leaving on account of dissatisfaction should be less in years of depression and greater in years of prosperity and that the proportion leaving on account of better opportunity should be greater in years of depression and less in years of prosperity. The reason is that when jobs are scarce, workers tend not to leave unless they have a definite job in prospect, whereas when jobs are plentiful, they leave because of slight discontent. The evidence tends to show that this is true. In plant A, the number of resignations due to dissatisfaction in 1913, a year of prosperity, was 41.3 percent greater than the number due to more attractive opportunities. In 1914, a year of depression, it was only 7.2 percent greater. In 1915, another year of depression, resignations on account of better opportunities exceeded resignations on account of dissatisfaction by 8 percent. In 1916, on the other hand, a year of great demand for labor, resignations due to dissatisfaction were 201.0 percent more numerous than resignations due to better opportunity.

In plant D the year 1914 does not conform to this rule. In that year resignations due to better opportunity were only 6.1 percent more numerous than resignations due to dissatisfaction, compared with 34.2 percent in 1913, a year of prosperity. In 1915, however, also a year of depression, resignations due to dissatisfaction were much less numerous in comparison with resignations due to better opportunity

TABLE XXXV

RELATIONSHIP BETWEEN THE PROPORTION OF RESIGNATIONS DUE TO BETTER OPPORTUNITIES AND TO DISSATISFACTION AND THE SKILL OF THE WORKERS IN A CHICAGO METAL WORKING PLANT

Class of workmen	Total of resignations due to better opportunity and to dissatisfaction	Resignations due to better opportunity elsewhere	Percent of all resignations due to better opportunity and to dissatisfaction	Resignations due to dissatisfaction	Percent of all resignations due to better opportunity and to dissatisfaction
All classes	243	111	45.7	132	54.3
Skilled workmen	17	11	64.7	6	35.3
Semi-skilled workmen of better grade	48	31	64.6	17	35.4
Semi-skilled workmen of lower grade	29	15	51.7	14	48.3
Laborers	96	25	26.0	71	74.0
Apprentices	39	22	56.4	17	43.6
Clerical, students, miscellaneous	14	7	50.0	7	50.0

than in 1913, resignations due to more attractive opportunities exceeding those due to dissatisfaction by 120.8 percent. Finally, in 1916 with the return of a heavy demand for labor, resignations due to dissatisfaction sharply increased, exceeding those due to more attractive opportunities by 16.8 percent. In both plants A and D the pronounced increase in the proportion of resignations due to dissatisfaction coincident with the labor scarcity in 1916 is noteworthy.

3. The numerical importance of various causes of discharge.

The causes of discharge may be divided into four main groups:

1. Causes relating to the workman's adaptability for the work, such as his skill, experience, physical and psychological qualifications.

2. Causes relating to the *willingness* of the worker to do the work and to assume responsibilities as distinguished from his *ability* to do the work. This class includes such causes as carelessness, laziness, unreliability, irregular attendance, lateness. The essential nature of the causes in this class is that they involve the *failure* to perform some duty rather than positive transgression, nonfeasance rather than misfeasance.

3. Positively wrong attitude on the part of the worker. This includes such causes as disagreeable disposition, chronic fault-finding, fostering a wrong attitude in other workers.

4. Positive misconduct. This group goes a step further than group 3 which is confined merely to the wrong attitude, and includes positively wrongful acts such as insubordination, violation of rules, dishonesty, fighting, intoxication.

Tables at the close of this chapter give the number of discharges due to the respective causes in a number of plants. These are the reasons reported by the foremen but they are not entirely reliable. A worker who makes

a mistake which angers the foreman may be discharged as incompetent although in reality he is a very proficient workman.[5] A worker who fails to report on a day when he happens to be especially needed may be discharged for absenteeism although normally regular in his attendance. The cases of this sort, however, probably do not constitute a large proportion of all discharges. There is undoubtedly some inaccuracy in the reports of foremen due to their failure to perceive what is really wrong with the worker. A slow man may be classed as lazy when in reality he is incompetent, or as incompetent when in reality he is lazy. Careless workers may be classed as incompetent and incompetent workers as careless. The second and third groups of causes are not affected by this sort of confusion. It is important, in order to have accurate statistics on the causes of discharge, that foremen be trained to distinguish accurately what is really wrong.

Unadaptability and positive misconduct cause by far the greater number of discharges in the plants included in Table XXXVII. In most cases unadaptability causes more discharges than positive misconduct, but this is far from universal. Causes relating to the willingness of the worker to work are responsible for a substantial number of discharges in every establishment; causes due to wrong attitude are responsible for few discharges.

Great variation exists in the relative importance of the various classes of causes in the different plants but the variation does not seem to occur in accordance with any principle. The larger the proportion of unskilled and slightly skilled men the smaller we would expect the proportion

[5] The writer finds it the common experience of employment men to be frequently requested by a foreman to rehire men discharged by the foreman as "incompetent." When asked why he desires the worker again, if he found him incompetent, the foreman frequently replies that he was angry when he discharged the man.

of discharges due to unadaptability, but data are unavailable to compare the plants on this basis.

Among female workers we would expect a smaller number of discharges due to positive misconduct, such as insubordination, breaking rules, fighting, etc. Establishment G, a store employing mainly female help, has an exceptionally small proportion of discharges due to misconduct.

Table XXXVIII, which classifies the discharges in a large metal working establishment among men, boys under 21, and girls under 21, shows that in each of the three years the proportion of girls discharged because of positive misconduct was decidedly less than the proportion of men or boys.

Table XXXVIII indicates another tendency which is to be expected, viz., that the proportion of discharges due to unreliability and carelessness is unusually large among boys. The proportion is larger for the boys than for either of the other classes of workers by a very substantial amount for each of the four years except 1915, when the proportion of discharges due to various causes of unreliability is smallest among the boys. Not only is the proportion of discharges due to carelessness, unreliability, and laziness greater among the boys than among the other two groups, but it is far greater than the proportion in any plant in Table XXXVII for the corresponding years.

It is to be expected that the proportion of discharges due to unadaptability should be greater in times of depression than in times of prosperity and that the proportion of discharges due to positive misconduct, wrong attitude, laziness and unreliability should be greater in times of prosperity than in depression. The reason is that in times of depression when jobs are scarce, workmen fear to lose their jobs and consequently are more industrious, careful and obedient than in prosperous times. Although they endeavor also to avoid being discharged for incompetence, they are less able to overcome the shortcomings of their natural abil-

ity and their training, hence the decrease in discharges due to incompetence is less than the decrease in discharges due to other causes, and consequently the proportion of discharges due to incompetence to all discharges is greater.

The data furnish some evidence that this tendency exists. In plant A the proportion of discharges due to unadaptability rose from 30.9 percent in 1913, a year of prosperity, to 37.8 percent in 1914, a year of depression. In 1915, also a year of depression, the proportion sank to 30.7, slightly below the proportion in 1913. In 1916, a year of great prosperity, it fell to 20.8 percent of all discharges. In plant C the proportion of discharges due to unadaptability rose from 46.2 percent in 1913 to 51.2 percent in 1914 and 59.0 percent in 1915, years of depression, and fell to 48.9 percent in 1916. In establishment D the proportion of discharges due to unadaptability rose from 35.0 percent in 1913 to 39.1 percent in 1914 and 40.0 percent in 1915. In establishment G, on the other hand, the proportion of discharges due to unadaptability was 66.7 percent for six prosperous months from December 1, 1915 to June 1, 1916 compared with 46.4 percent for the same month in 1914-1915, a time of depression. It is probable that more data would clearly demonstrate a tendency for the proportion of discharges due to unadaptability to increase in depressed times and decrease in prosperous times.

TABLE XXXVI

CAUSES OF RESIGNATIONS IN CERTAIN PLANTS AND AMONG CERTAIN GROUPS OF WORKERS

Causes of resignation	Metal working, A								Metal working, B	
	1913		1914		1915		1916		1913	
	No.	%	No.	%	No.	%	No.	%	No.	%
Total all resignations	1485	.....	581	.....	621	.....	3035	.....	819	.....
Total resignations for which reasons were given	1444	100.0	549	100.0	583	99.9	2788	100.0	601	100.1
More attractive opportunities	429	29.7	139	25.3	216	37.0	593	21.3	184	32.5
Dissatisfaction	606	42.0	149	27.2	200	34.3	1784	64.0	203	35.9
Change of residence	315	21.8	189	34.4	66	11.3	241	8.6	173	30.6
Miscellaneous reasons	94	6.5	72	13.1	101	17.3	170	6.1	.....	.....
Illness or ill health	27	1.9	21	3.8	18	3.1	67	2.4	.....	.....
To stay at home	.....	.....	.....	.....	.....	.....	82	2.9	.....	.....
Matrimony	55	3.8	42	.....	62	10.6	.....	.....	.....	.....
Deceased	12	.8	9	1.6	21	3.6	21	.8	.....	.....
Scattering	.....	.....	.....	.....	.....	.....	.....	.....	6	1.1
Reasons not specified	41	.....	32	.....	38	.....	247	.....	218	.....

TABLE XXXVI—*Continued*

CAUSES OF RESIGNATIONS IN CERTAIN PLANTS

Causes of resignation	Metal working, C		Metal working, D							
	1913		1913		1914		1915		1916	
	No.	%	No.	%	No.	%	No.	%	No.	%
Total all resignations	1625	.....	238	.....	133	.....	107	.....	332	.....
Total resignations for which reasons were given	1239	100.0	155	99.9	115	100.0	98	100.0	291	100.1
More attractive opportunities	378	30.5	55	35.5	35	30.4	53	54.1	113	38.9
Dissatisfaction	418	33.8	41	26.4	33	28.7	24	24.5	132	45.4
Change of residence	342	27.6	34	21.9	26	22.6	10	10.2	10	3.4
Miscellaneous reasons	101	8.1	25	16.1	21	18.3	11	11.2	36	12.4
Illness or ill health	77	6.2	22	14.2	17	14.8	10	10.2	27	9.3
To stay at home	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Matrimony	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Deceased	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Scattering	24	1.9	3	1.9	4	3.4	1	1.0	9	3.1
Reasons not specified	388	.....	83	.....	18	.....	9	.....	41	.....

TABLE XXXVI—*Continued*

CAUSES OF RESIGNATIONS IN CERTAIN PLANTS

Causes of resignation	Electrical machinery, E 1915		Store, F				Batteries, G		Cameras, H 1915	
			Dec. 1, 1915 to June 1, 1916		Dec. 1, 1914 to June 1, 1915					
	No.	%	No.	%	No.	%	No.	%	No.	%
Total all resignations	255	.....	272	.....	161	.....	.....	.....	366	.....
Total resignations for which reasons were given	255	100.1	250	100.0	147	100.0	.....	100.0	342	100.0
More attractive opportunities	70	27.5	123	49.2	72	49.0	.....	19.5	143	41.8
Dissatisfaction	91	35.7	14	5.6	3	2.0	.....	55.0	74	21.6
Change of residence	56	22.0	16	6.4	15	10.2	.....	13.1	.....	.....
Miscellaneous reasons	38	14.9	97	38.8	57	38.8	.....	12.4	125	36.6
Illness or ill health	27	10.6	51	20.4	27	18.4	.....	.....	52	15.2
To stay at home	2	.8	22	8.8	9	6.1	.....	.....	.....	.....
Matrimony	1	.4	22	8.8	16	10.9	.....	.....	.....	.....
Deceased	.....	.....	2	.8	5	3.4	.....	.....	.....	.....
Scattering	8	3.1	.....	.....	.....	.....	.....	.....	73	.....
Reasons not specified	.....	.....	22	.....	14	.....	.....	.....	24	.....

TABLE XXXVI—*Continued*

CAUSES OF RESIGNATIONS IN CERTAIN PLANTS

Causes of resignations	Clothing, I, 1916–1917		Power plant, J, 1915		Women in bookbinding industry, K(*a*)		Printing and bookbinding, L								Agricultural implements, M		Paper novelties, N		Women in dressmaking industry, O (*b*)	
							1912		1913		1914		1915		Year ending July 1, 1916					
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total all resignations	....	....	74	....	169	....	151	....	81	....	47	....	36	....	180	....	287	....	182	....
Total resignations for which reasons were given	....	100.0	39	100.0	169	100.0	124	100.0	61	100.0	46	100.0	36	100.0	126	100.0	287	100.1	182	100.0
More attractive opportunities	....	16.3	16	41.0	52	30.8	46	37.1	24	39.3	27	58.7	24	66.7	66	52.4	96	33.5	34	18.7
Dissatisfaction	....	51.7	11	28.2	56	33.1	....	....	....	....	....	....	....	....	37	29.3	33	11.5	c107	58.8
Change of residence	....	6.4	6	15.4	....	....	....	....	....	....	....	....	....	....	....	....	51	17.8	10	5.5
Miscellaneous reasons	....	25.6	6	15.4	61	36.1	78	62.9	37	60.7	19	41.3	12	33.3	23	18.3	107	37.3	31	17.0
Illness or ill health	....	....	5	12.8	15	8.9	16	12.9	12	19.7	5	10.9	1	2.8	....	....	....	....	23	12.6
To stay at home	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3	1.6
Matrimony	....	....	....	....	....	....	7	5.6	5	8.2	7	15.2	9	25.0	....	....	....	....	5	2.7
Deceased	....	....	1	2.6	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Scattering	....	....	....	....	46	27.2	55	44.4	20	32.8	7	15.2	2	5.6	23	18.3	....	....	....	....
Reasons not specified	....	....	35	....	....	....	27	....	20	....	1	....	....	....	54	....	....	....	....	....

(*a*) Mary Van Kleek, *Women in the Bookbinding Industry*, p. 112.

(*b*) May Allinson, "Dressmaking as a Trade for Women in Massachusetts," U.S. Bureau of Labor Statistics, *Bulletin* No. 193, p. 107.

(*c*) Includes 3 "didn't succeed," 11 "unsatisfactory shop conditions," 5 "didn't like it."

TABLE XXXVI—*Continued*

CAUSES FOR RESIGNATIONS FROM FIRST POSITION BY 1473 CHICAGO CHILDREN (*d*)

(Group P)

Causes of resignation	Total		Boys		Girls	
	No.	%	No.	%	No.	%
Total all resignations	1,473	100.0	866	100.0	576	100.0
More attractive opportunities	256	17.4	151	17.4	105	18.2
Better job	214	14.5	134	15.5	80	13.9
To school	21	1.4	7	.8	14	2.4
To learn a trade	14	1.0	7	.8	7	1.2
To go to business college	7	.5	3	.3	4	.7
Dissatisfaction	953	64.7	595	68.7	358	62.2
Wages too low	308	20.9	175	20.2	133	23.1
Too hard, too heavy	209	14.2	131	15.1	78	13.5
Hours too long	49	3.2	42	4.8	7	1.2
No chance to advance	70	4.8	59	6.8	11	1.9
Didn't like the boss	25	1.7	12	1.4	13	2.3
Too far from home	8	.5	4	.5	4	.7
Conditions bad	23	1.6	14	1.6	9	1.6
Fight with fellow worker	42	2.9	23	2.7	19	3.3
Not specified	219	14.9	135	15.6	84	14.6
Miscellaneous reasons	264	17.9	120	13.9	113	19.6
Vacation	9	.6	5	.6	4	.7
Sickness	95	6.5	46	5.3	49	8.5
Needed at home	58	3.9	19	2.2	39	6.8
Family moved	35	2.4	24	2.8	11	1.9
Strike	11	.7	5	.6	6	1.0
Foreman left	6	.4	5	.6	1	.2
Injured	19	1.3	16	1.8	3	.5
Scattering	31	2.1	(*e*)	.....	(*e*)	.....

(*d*) *Report of Bureau of Vocational Guidance, Chicago Public Schools*, 1916, p. 37.
(*e*) Figures not reported.

TABLE XXXVII

CAUSES OF DISCHARGE IN CERTAIN PLANTS

Causes of discharge	Metal working, A								Metal working, B	
	1913		1914		1915		1916		1915	
	No.	%	No.	%	No.	%	No.	%	No.	%
All causes	495	.....	225	.....	114	.....	467	.....	44	.....
Unadaptability	153	30.9	85	37.8	35	30.7	98	20.8	13	29.6
Incompetent	64	12.9	22	9.8	9	7.9	31	6.6	13	29.6
Slow	43	8.7	10	4.4	1	.9	21	4.5	.....	.....
Physically unadapted	46	9.3	53	23.6	25	21.9	46	9.7	.....	.....
Spoiling work	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Shiftlessness and unreliability	165	33.3	57	25.3	40	35.1	138	29.6	6	13.6
Careless	.....	.....	.....	.....	.....	.....	.....	.....	1	2.3
Habitually lazy	46	9.3	21	9.3	7	6.1	21	4.5	2	4.5
Caught loafing or sleeping	26	5.2	5	2.2	6	5.3	32	6.9	2	4.5
Absenteeism	86	17.4	26	11.6	25	21.9	76	16.3	1	2.3
Habitual lateness	4	.8	3	1.3	1	.9	6	1.3	.....	.....
Unreliable	3	.6	2	.9	1	.9	3	.6	.....	.....
Wrong attitude	6	1.2	2	.9	.....	.....	15	3.2	1	2.3
Disagreeable	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dissatisfied	6	1.2	2	.9	.....	.....	15	3.2	.....	.....
Chronic kicker	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Disturber and trouble maker	.....	.....	.....	.....	.....	.....	.....	.....	1	2.3
Positive misconduct	166	33.5	79	35.1	37	32.5	205	43.9	8	18.2
Violation of rules	39	7.9	18	8.0	5	4.4	77	16.5	.....	.....
Insubordination	74	15.0	35	15.6	20	17.6	81	17.4	6	13.6
Dishonesty	8	1.6	6	2.7	3	2.6	8	1.7	.....	.....
Intoxication	15	3.0	6	2.7	5	4.4	16	3.4	1	2.3
Fighting	30	6.1	14	6.2	4	3.5	23	4.9	.....	.....
Not specified	.....	.....	.....	.....	.....	.....	.....	.....	1	2.3
Miscellaneous causes	5	1.1	2	.9	2	1.8	11	2.4	16	35.4

CHAPTER IX

CAUSES OF THE TURNOVER PERTAINING TO THE JOB

The causes of the turnover pertaining to the job include all causes arising from the physical nature of the work, its difficulty, the disagreeable features connected with it such as dust, fumes, odors, smoke, heat, wetness, dirt, exposure to cold, monotony and nervous strain, the wages, the regularity of work, the hours, the time at which work comes, whether all or in part night work, whether on Sundays as well as week days, the opportunities for promotion, and the accessibility of the working place to the workman's home.

The work may not be exceptionally difficult or disagreeable as jobs in general go, nor be low paid for the degree of skill which it involves, but it may *seem* so to the worker. Workmen have different standards in regard to what is hard or easy, agreeable or disagreeable, based largely on what they are accustomed to. Work which seems undesirable to Americans may be attractive to newly arrived immigrants accustomed to the wage and hour standards of eastern and southern Europe. The type of workmen hired, in so far as possible, should be the type which will be satisfied with the conditions of the job.

The job may seem difficult or low paid because the workman is unqualified for the work. The job may require great strength when the workman is not a strong man; it may require good eyesight, dexterity or natural mechanical ability which the workman may lack. The reason given by the workman for leaving in such cases may be that the work is too hard, or the wages too low, when, as a matter

of fact, the real cause is that he is unqualified for the task.

The job may seem undesirable to the worker because he is new in the place. Whether a man is satisfied or dissatisfied with his job depends largely upon his attitude, upon whether he tends to see its advantages or its disadvantages the more strongly. Things to which men are accustomed they tend to accept as a matter of course. Even though bad conditions exist in a shop, the men who have been there for some time and are accustomed to them, tend to think little of them and to put up with them as a matter of course. The new men, however, to whom the undesirable conditions are strange, are likely to find them intolerable. The frame of mind of the new man also is such that he is inclined to see the disadvantages of the new job more prominently than its advantages. Men tend to be less critical of those things with which they feel themselves identified, of which they feel a part. Old employees, because of their long association with the shop and their feeling of being more or less a part of it, tend to be lenient toward unsatisfactory conditions. The new men, however, have no such feeling of identification with the place. They view it coldly as strangers and its shortcomings stand out prominently to them.

The new men also feel the distrust and suspicion which men are likely to feel toward unfamiliar things. This tends to render them more critical.

The learning period is the most trying period in the worker's career. He has not acquired skill at the work, and the task is, therefore, especially onerous and difficult during this period. His feeling of strangeness also diminishes his self-confidence and he is particularly susceptible to discouragement. He tends to judge the desirability of the job by his experience during the first few days before he has acquired proficiency, and he may conclude, because

he finds the job difficult to learn, that it is too hard, or because while learning his earnings are small, that it is underpaid.

The job may seem too difficult or underpaid because the worker lacks proper instruction in how to do it. In few shops is systematic and careful instruction given to new men. The best and easiest way of doing the work and particularly the best methods of teaching men have not been worked out by the management. The new man is simply shown in a general way by the foreman or by a fellow worker how to perform the operation. The method he is taught may or may not be a good one, the instructions he receives may or may not be clear. He is not closely followed up in order that his faults may be corrected as soon as they arise and before he acquires wrong habits of work which are difficult to break.

It is not sufficient that the job be free from exceptionally hard or disagreeable features in order to enable it to hold men. If men are to remain for long periods at a job they must not only find the work free from unusually severe and disagreeable features but they must be interested in it. There must be ties which positively attach them to it as well as absence of repelling influences. Otherwise they will tire of the job in time in spite of the fact that it may be neither disagreeable nor trying. When a worker tires of his job he sees all of its minor difficulties and disadvantages magnified many times. It is then only a matter of time when he will quit. Because of the intimate relationship between men's interest in their work and their stability it is important to know what powers modern factory work possesses to win the interest and attachment of the workers.

Five principal characteristics seem most important in interesting men in work. They are:

1. More or less variety. The same thing continuously soon becomes tiresome physically and mentally.

2. An element of the unexpected, the unknown. To know with absolute certainty what is coming next is dull. The love for the new, the unknown, is universal; it is part of the spirit of adventure which all men possess in large or small degree. Too much uncertainty is disagreeable, particularly to timid natures, but normal men enjoy an element of the unexpected.

3. The opportunity to exercise initiative, ingenuity, to decide for oneself how to do things rather than have the decisions made for one. It seems an inherent trait in human nature to enjoy having one's resourcefulness appealed to. Problems in themselves exert a fascination. The process of unraveling them and the sense of achievement which comes with success is pleasurable.

4. The ability to see a fairly definite prospect of advancing by merit to better paying or more attractive work.

5. The opportunity to feel pride in one's work and to win the respect and esteem of other men.

The importance of interest in work is indicated by the pleasure which men derive from doing work which subjects them to severe physical and mental strain *so long as it interests them.* At such work men slave for long hours at the sacrifice of health and recreation, and risk life and limb without complaint. Take away the elements which create interest and the easiest task becomes drudgery.

Semi-skilled and unskilled factory work is seriously deficient in most of the characteristics which interest men in their work. Variety is perhaps the quality least lacking in factory work. In spite of the frequent references which we encounter to the repetitive nature of modern factory work and in spite of the undoubted tendency for repetitive work to increase, it is doubtful whether half of factory workers are engaged in highly repetitive work. Most unskilled laborers, truckers, lumpers, most skilled laborers (artisans) and many semi-skilled *hand* laborers are engaged in work which is not a repetition of the identical movements. A large part of the semi-skilled *machine* operators and many hand workers (particularly bench workers and those engaged in assembling operations), however,

do precisely the same operation hundreds or thousands of times a day. The tendency, moreover, clearly is for the repetitive nature of factory work to increase, and "scientific management" with its policy of subdividing and standardizing has given the tendency a great impetus.

The element of the unexpected, the unforeseeable is more limited than the element of variety, for in many jobs in which variety exists the element of unexpectedness is slight or negligible.

The opportunity to display initiative and ingenuity is still more limited. In the first place, operations are reduced to the utmost simplicity by the subdivision of labor. Operations which require ingenuity, judgment and skill are concentrated in the hands of a few responsible men. The belts are tended by a specialist, tools are ground and set by a specialist, repairs are made by a specialist. The work done by the mass of workers is a residue from which the exacting elements, everything calling for ingenuity and judgment, has been largely extracted. In the second place, machinery is made as fool-proof as possible. The demand of the manager ever is: "How can this machine be improved so that a cheaper man can operate it?" Jigs, fixtures and the semi-automatic machine which reduce the importance of the human element are the result. In the third place, operations are standardized so that instead of relying upon his own judgment the worker simply follows the standard method of performing the work. Motion study is extending standardization to the minutest motions of the workers.

The importance of the lack of a fairly definite prospect of advancing to better paying or more attractive work has been inadequately appreciated. Most men feel the need of a goal to put the zest of the struggle and contest into their work, the hope of better things to-morrow to take their minds off the difficulties of to-day. The factory workman is the same as other men in these respects. Every factor

which lessens the hope for better things to-morrow renders the hardships of to-day doubly onerous. This is precisely the effect of the failure of employers to follow a definite policy of promoting by merit, which is typical of modern industry. It denies the worker the hope that efficiency in his present job will win him something better. The fact that his future prospects are indefinite, whether he remains at his same job or goes to another plant where it is a gamble whether he will fare better or worse, causes every difficult feature of his job to be greatly magnified in his eyes. The disagreeable features of the job are unmitigated by knowledge that it is a stepping stone to something better. The worker's dislike for his job, thus intensified, precludes the development of interest in it.

One of the most important determinants of the interest which men feel in their work is their ability to feel pride in it. The pride which the holders of responsible positions feel in their work, the fact that it gives them the opportunity to win men's respect and esteem is probably the most important reason for the substantial satisfaction which they derive from it, for their duties are frequently onerous. Semi-skilled and unskilled workmen are deprived of the opportunity to feel pride in their work by several circumstances.

In the first place, the simplification of work by the minute subdivision of labor, by standardization, by the development of mechanical aids and semi-automatic machinery, and by the transfer of exacting operations to specialists, lessening the demands made upon the workman's judgment and the skill and the responsibility which he bears, renders it impossible for the workman to feel the satisfaction of doing something which almost any one else cannot do. The commonplace character of his work is constantly reimpressed upon him by the management's hiring inexperienced outsiders, often of nationalities which he re-

gards as "inferior," and teaching them to do the same operation he is performing or similar ones.

In the second place, semi-skilled and unskilled labor because of the commonplace ability required to do it and because it is low paid, dull, uninteresting, and frequently dirty and onerous, is looked down upon by men in general. A social stigma, therefore, attaches to the work and to those who are engaged in it, which renders the feeling of pride in the work even when well done almost impossible. This stigma which attaches to semi-skilled and unskilled work and to those engaged in it, is one of the principal reasons for the dislike or indifference toward their work which prevails among semi-skilled and unskilled workers and is one of the chief obstacles to the development of a spirit of workmanship among them.

The more onerous, monotonous, dirty, disagreeable, and unattractive the work is, the greater is the social stigma attaching to it. The originally unattractive nature of the work tends, therefore, to have a cumulative effect. It not only inflicts on the worker the physical discomforts natural to it, but creates the additional detraction of causing the work to be looked down upon more than ever. Precisely those kinds of work which are naturally most unattractive are made doubly so by the social stigma attaching to them.[1]

[1] The great social cost of silly standards which attach a stigma in greater or less degree to hard, dirty, and disagreeable work, no matter how useful and no matter how faithfully and honestly done, is continually overlooked. The energy and carefulness with which men work depend in a large measure upon the interest and pride which they take in their work. By imposing obstacles to the feeling of interest and pride in their work by the less skilled manual laborers, these social standards directly limit the efficiency of this class of workers.

These customary standards also tend to maintain false impressions concerning the real nature of the work. Much of the so-called unskilled or slightly skilled work requires far more pro-

By the limitation placed upon output by the piece rate cutting system, the workmen are deprived of the opportunity of escaping the stigma which results from the commonplace character of their work by differentiating themselves from the mass of workers through showing greater working capacity. In order not to have the piece rate on his job reduced, the worker must not produce more than a tacitly understood amount. The workmen are deprived of the opportunity of differentiating themselves by manifesting superior workmanship, because accuracy beyond a given rough standard is often not required in semi-skilled work, because where it is required its attainment is made almost automatic by jigs and fixtures, or because the duty of setting the tools is transferred to a specialist.

The opportunity of workmen to derive a sense of achievement from their work and pride on account of their individual proficiency is further limited by the policy of the management under the "drive" system (which is explained in the following chapter) of seeking to impress the workers with a sense of their unimportance. The endeavor of the policy is to convince the workmen that they are individually of no particular consequence, that they can be

ficiency than it is given credit for, and in particular offers scope for more ability than is customarily supposed. The custom has been to regard as common labor or slightly skilled labor operations which most men could perform in a fairly satisfactory manner with little or no training. The fact that there are many degrees of proficiency and that even at the simplest operations there is opportunity for great display of proficiency has been neglected. The direction of attention to the fact that even the simplest operations offer great opportunity for proficiency has been one of the greatest services of "scientific management." The lack of social recognition of the opportunity in unskilled and slightly skilled work for special proficiency has undoubtedly tended to deter workmen engaged in such work from endeavoring to develop special proficiency because they have felt that no opportunity for proficiency existed.

easily replaced without loss, and that no special abilities which they may have are entitled to recognition. The purpose of the policy is to overawe the workmen, to render them docile and willing to submit to the drastic "drive" policy. This policy is clearly hostile to the growth of all feeling of self-confidence in workmen, to the development of the belief that they are capable of attaining extraordinary proficiency, a belief which is a prerequisite to attempts by workmen to develop exceptional efficiency which might lead them to feel pride and pleasure in their work. It tends also to prevent them from recognizing whatever extraordinary proficiency they may possess or at least from recognizing its importance and hence feeling pride and pleasure in their work on this account.

Several additional factors contribute to the difficulty which modern workmen experience in feeling interest and pride in their work. One is the spirit of profit making which dominates business to the exclusion in large measure of the spirit of social service. In spite of the widespread addiction to pecuniary standards of success, men derive substantial pleasure and satisfaction from achieving something useful. The consciousness of being useful is undoubtedly to most men one of the principal sources of pleasure and interest in work. The modern organization of business and modern business ideals, however, deprive in large measure the men in the ranks of the pleasure and interest in their work which results from the pleasure in useful achievement. The workmen realize the pecuniary aims of the enterprises for which they are working. They know that the enterprises are more interested in obtaining profits than in the rendering of service. They realize also that they themselves are employed to create profits rather than render social service and that increase in their efficiency means first of all larger profits for their employ-

ers and only incidentally and indirectly benefits for the public.

Employed by profit seeking organizations which, in so far as they are able, keep for themselves the benefits of the workmen's skill and exertion, modern workmen tend to regard themselves as instruments for private profit rather than instruments of social service. They do not experience in the performance of their duties and in the development of their proficiency the full interest and satisfaction which result from the knowledge that they are performing a social service. On the contrary, their dislike of being used as instruments of private profit in which they do not (in their own opinion, at least) adequately share, fosters in them aversion to their work and indifference to their efficiency.[2]

The workmen's lack of interest in their work and in the development of their proficiency is accentuated by their attitude toward the employing class. Workers in general regard themselves as victims of exploitation. Whether they are or not is immaterial here. The workers believe that they are and that their employers reap the benefits. This tends to destroy their interest in the development of their proficiency for several reasons. In the first place the belief that they are already rendering more service than they are paid for disinclines them to attempt to render still more. In the second place the knowledge that the benefits of their greater proficiency would accrue largely to the very

[2] The consciousness that they are primarily instruments of private profit rather than of social service has somewhat subtle effects upon workmen. It tends to cause them, for example, to feel degraded, to lose their self-respect, to feel contempt for themselves. This self-contempt which modern industry fosters among the working classes is one of its most serious demoralizing influences and one of the greatest obstacles in the way of the elevation of the working classes. Trade unions have an elevating effect in so far as they dissipate the workers' feeling of self-contempt.

employers who they feel are exploiting them causes them to limit their proficiency. They do not care to be benefactors of employers who they believe are exploiting them. Reduction of the workmen's interest in the development of their proficiency reduces their interest in their jobs themselves, because one of the most important sources of interest to workmen in their jobs is their interest and pride in their ability to perform the work well.[3]

The relations between the workers and the management affect the attitude of the men toward their work, the interest they feel in it, their susceptibility to dissatisfaction with it, in a much broader and more fundamental way than discussed above. There is no sharp dividing line between the causes of the turnover due to dissatisfaction with the work and the causes due to unsatisfactory relations with the management. Dissatisfaction with the work tends to create unsatisfactory relations with the management and

[3] A few years ago a German investigator collected opinions from several thousand workers concerning their interest in their work (Levenstein, *Die Arbeiterfrage,* Munich, 1912). The opinions were collected by questionnaire and are less satisfactory than opinions obtained by interview. The questionnaires, however, were distributed one by one. They were not distributed simultaneously among groups of assembled workers where the crowd opinion might be the decisive influence. The questionnaires were distributed among three classes of workers—miners, textile workers and metal workers. The results were:

	Miners (*a*)		Textile workers (*b*)		Metal workers (*c*)	
	Number	Percent	Number	Percent	Number	Percent
Interested	318	15.2	82	7.1	307	17.0
Not interested	1,262	60.5	865	75.1	1,027	56.9
Indifferent	366	17.6	157	13.6	308	17.1
No answer	138	6.7	49	4.2	161	9.0
Totals	2,084	100.0	1,153	100.0	1,803	100.0

(*a*) p. 61; (*b*) p. 67; (*c*) p. 75.

unsatisfactory relations with the management tend to cause workers to see their work in a less favorable light and to notice disagreeable and unattractive features of their jobs to which they otherwise would have paid little or no attention. The profound effects of the relations between the men and the management upon the attitude of the men toward their work are discussed in the next chapter.

CHAPTER X

CAUSES OF THE TURNOVER ARISING FROM RELATIONS BETWEEN THE MEN AND THE MANAGEMENT

1. The effect of the relations between men and management upon the turnover.

The relations between the men and the management are important from the standpoint of the turnover because:

1. Unsatisfactory relations with the management are in themselves disagreeable and render the workers desirous of leaving.

2. Unsatisfactory relations lead to ill-treatment of the workers by the management resulting in dissatisfaction and resignations.

3. Unsatisfactory relations create resentment among the workers toward the management and lack of interest in their work which result in acts or omissions which lead to their discharge.

4. Unsatisfactory relations with the management accentuate all the disagreeable features of their jobs in the eyes of the workmen and hinder them from developing an interest in the work which minimizes the effects of the disagreeable features of their jobs. The very fact that men are dissatisfied with the management puts them in a mood which causes them to see things in general in a less favorable light. They notice unattractive features of their jobs which otherwise they would overlook. Most important of all, the knowledge that in doing their work they are simply benefiting the management which they dislike causes them to dislike the work itself. The fact that any increase in

product or improvement in quality which they bring about by increasing their efficiency will accrue to the management which they dislike definitely kills their interest in doing their work well and causes them to do no more than is necessary to hold their jobs. Nothing is more certain to create a thoroughly dissatisfied workman than the desire to turn out as little as possible. It prevents the worker from becoming interested in the development of his efficiency, it takes from the work the spirit of the game and the zest in accomplishment, it prevents the development of pride in proficiency and of the spirit of workmanship, and leaves the worker no source of interest except his pecuniary one to relieve the dullness and monotony of the job.

5. Good relations between the men and management are in themselves a positive source of pleasure to the workmen, and the satisfaction derived from them tends to hold men in spite of unfavorable conditions of work or inherently disagreeable features in the work itself.

6. Just as dissatisfaction is cumulative in its effects, dissatisfaction in one respect tending to create a fault-finding attitude which produces dissatisfaction in other respects, so also is satisfaction cumulative in its effects. When good relations prevail between workers and management, the work itself becomes more attractive to the workers because they are in a mood to see its favorable rather than its unfavorable features.

7. Men give their allegiance to those persons and groups with which their self-interest is identified. When, therefore, relations between management and men are bad, the workmen regard themselves not as part of the business but simply as outsiders. Their loyalty is to their own group with which their interest is identified. Feeling no attachment to the business, they are not deterred from leaving, when a better opportunity offers, by the dislike of

breaking such ties. Toward conditions in the shop they feel the free critical attitude of a complete outsider. Their interest in their work is enhanced by no interest in the affairs of the business, by no feeling of identity with the business.

On the other hand, when good relations prevail between men and management, a feeling of unity and sympathy tends to develop between them which causes the workmen to regard themselves not as outsiders but as part of the business. They look upon the affairs of the firm not as the affairs of an organization entirely separate from them but as their own affairs in which they themselves feel an interest. This materially enhances their interest in their work and hence their satisfaction in doing it. The fact that the men feel themselves a part of the business rather than outsiders, causes them to take a less critical attitude toward conditions in the shop, for, as previously pointed out, men are more lenient in the criticism of things with which they feel identified. Finally, the very fact that workers feel themselves a part of the organization and feel a special interest in its affairs renders them loath to quit even when they can better themselves elsewhere. The abandonment of associations and interests to which they feel attached is not lightly made.

The character of the relations between men and management in most shops appears to be governed principally by three fundmental conditions. These conditions are:

1. The lack of acquaintanceship between men and management.
2. The "drive" system of management.
3. The lack of a grievance system.

2. Lack of acquaintanceship between men and management.

The typical shop is characterized by more or less of a gulf between the men and the management. There may be

no positive hostility, but there is usually a lack of acquaintanceship and of understanding. The men and management are to a great degree strangers. If the plant is a large one employing several thousand men, few of the individual workers are known to the high officials who determine fundamental policies. Those in authority to whom the individual workers are known, the division superintendents, foremen and gang bosses, have neither the time nor the inclination to pay much attention to the interests of workmen. They are absorbed in the problems of increasing output and reducing costs. The workmen feel, therefore, not without reason, that they are simply cogs in a great machine which takes no particular interest in them.[1]

Lack of acquaintanceship and understanding leads on the part of the management to a forgetting of the sensibilities

[1] A striking example of how far apart workmen and management may grow without the management appreciating the existence of the gulf is furnished by the recent safety movement. Many managers testify that their safety campaigns were the means of discovering their lack of acquaintanceship with their men and brought about an acquaintanceship which materially improved relations. The reason for this was that in order to prevent accidents it was necessary to secure the *coöperation* of the men, since most accidents mechanical guards cannot prevent. The management was forced to go directly to the men and request their *coöperation*. Men were appointed on safety committees, where they shared responsibility and authority and were brought into direct contact with those in authority. The effect of this contact on relations between men and management is illustrated expressively by a Wisconsin manufacturer who writes me: "Our safety movement has taught the men that the office is more than a place to get fired." Mr. C. W. Price, field secretary of the National Safety Council and formerly safety expert of the Wisconsin Industrial Commission, describes the experience of a large Wisconsin mill, one of the most conservative in the state, which had refused, until compelled, to build guards. Being induced to put in a safety organization, they made a remarkable record. The manager, however, stated that, although the saving in compensation payments and in time lost on account

of the men and to consequent tactless handling and failure to perceive and take advantage of opportunities to gain the men's good will. What the workmen think of a given practice, how they are affected by given conditions is overlooked or regarded as of little consequence. Fair consideration of requests or grievances of workmen is impeded; the men's requests and grievances are underestimated in importance. They are often regarded as manifestations of undue fastidiousness on the part of the men, or as due to a malicious delight in complaining. The management tends to develop the attitude: "If a man doesn't like the way we do things here, he can get out."

of disability more than equaled their expenditure, even had they not prevented a single accident, they would have been amply repaid for the money spent by the better relations with their men which resulted from better acquaintance and closer contact.

Mr. O. H. Wernicke, president of the Macey Company, has been quoted in regard to their safety campaign as follows: "This is putting us in closer contact than any other scheme we have tried and we have tried a lot. We are all for it." (*American Industries,* v. XIV, No. 11, p. 20.) Mr. F. O. Clements, chairman of the central safety committee of the National Cash Register Company, made the following statement several years ago at the convention of the National Association of Corporation Schools: "I think the big thing that comes to us outside of the actual benefits of safety work is the inculcation of the spirit of coöperation that goes throughout the organization. . . . Safety committees permit close touch with your organization and nothing helps strengthen the spirit of coöperation like the personal touch." (*Proceedings of the National Association of Corporation Schools,* 1915, p. 817.)

Another evidence of the lack of understanding between men and management is the frequency with which we hear the comment on the part of employers: "Our people do not appreciate or understand what we are trying to do for them." Men are not normally unappreciative, and when we hear such a statement it is probable that the betterment work was planned with a misunderstanding of the men's needs and desires due to lack of familiarity with the workman's point of view or that the workers, because of lack of acquaintance with the management, mistrust its motives.

Lack of acquaintanceship between men and management leads to a mutual misunderstanding of motives, and to a mutual lack of confidence. The management tends to develop the point of view that men are incapable of loyalty, that they are inclined to take advantage of fair treatment instead of responding to it, and that the only way to handle them is to hold over them the fear of discharge.

The failure of the management to show due consideration for the men's sensibilities causes them to feel that the management is interested almost solely in getting as much out of them as possible, that it regards them simply as instruments of production, that it will take advantage of them at every opportunity, that it cannot be relied upon to do the fair thing by them.

3. The "drive" system of management.

The effects of the lack of personal relationship between the men and the management are accentuated by the "drive" system of management. The "drive" system, in part at least, is an outgrowth of the lack of acquaintanceship between the men and management, because, did a close acquaintanceship between them exist, it is doubtful whether the management would be willing in many cases to pursue a drastic "drive" policy.

The "drive" system of management may be defined as the policy of obtaining efficiency not by rewarding merit, not by seeking to interest men in their work, not by fostering their good will nor by seeking to obtain their *coöperation,* but by putting pressure upon them to turn out a large output. The dominating note of the "drive" policy is to inspire the workmen with awe and fear of the management, and having developed fear among them, to take advantage of it. The most prominent characteristic of the system has undoubtedly been the piece rate cutting policy which has prevailed generally and under which the piece rate is cut

when the earnings of the operative exceed a tacitly understood amount.

The "drive" policy by its very nature renders discord and ill-feeling inevitable. The management attempts to get as much out of the workmen as possible without offering compensation for the greater output. The palpable unfairness of this policy is a source of considerable resentment to the workers. They retaliate for the speeding up by limiting output. This develops friction and clashes with the foremen and gang bosses, accentuating the unsatisfactory relations.

The "drive" system develops a dictatorial and overbearing attitude on the part of the management. The policy of the management is to cow the workers, to overawe them, to render them docile and submissive so that they will not resist being driven. It is desired that the workers feel themselves of little importance, that they possess little self-confidence, and that they shall not feel able or willing to assert their rights. Too much consideration shown them it is felt will lessen their awe of the management and it is deemed advisable to keep a "healthy" fear in their hearts. This attitude increases the gulf between the men and the managment, blinds the management more than ever to the sensibilities of the workman, leads to tactless methods of handling men, increases the workers' dislike of the management, and results in friction, resignations, and discharges.

One of the best ways to win the good will of men is to help them increase their earning capacity by developing their skill. This opportunity to gain the good will of the men is closed when the "drive" system is used, for the men are not interested in producing more when they know that if they do the piece rate will be cut.

4. The lack of a grievance system.

The management in most shops is hostile to the reception of complaints. As stated above, the feeling is, "If a

man doesn't like it here, he can get out." To some extent this is due to the lack of a proper regard for the sensibilities of the workers caused by the lack of personal contact with them. To some extent also it is due to the development of a dictatorial attitude under the "drive" system and impatience at having one's methods questioned. Partly also it is due, as suggested above, to the fear that the hearing and adjustment of grievances will stimulate the presentation of other grievances and will give the workmen exaggerated notions (in the management's opinion) of their rights so that they will become unwilling to submit docilely to the "drive" system.

In most establishments a worker with a complaint which he cannot have adjusted satisfactorily by the foreman, has in theory the right to appeal all the way up to the president. In practice, however, this right is negligible because of the policy of indiscriminately backing up the foreman, right or wrong. This policy is defended on the ground that to reverse the foreman would impair his ability "to maintain discipline." The right of appeal is empty also because of the lack of protection for the appellant from discrimination and mistreatment at the hands of the foreman. A foreman who takes offense at a worker who appeals from his decisions can make it unbearable for the worker to remain in the shop. The only remedy under existing conditions in most shops for a workman with a grievance is to resign.

The lack of a grievance system is important not only because there are no means to remedy the undesirable conditions which arise, but also because the lack of opportunity to have grievances heard increases the importance of the grievances to the workmen and creates new grievances. A man may have a complaint of slight importance which under a proper system of handling grievances would be easily settled. *The fact that he cannot secure action on*

the complaint, however, causes it to assume an importance in his eyes out of proportion to its real seriousness. He nurses it and frets over it and it becomes large in his eyes. His principal grievance is not the original complaint *but the fact that he cannot obtain a fair consideration of the original complaint.* This is what happens when a workman cannot obtain a hearing or when, if there has been a hearing, he feels it was merely perfunctory and that the foreman was sustained as a matter of course. His grievance assumes a new importance and he acquires a new complaint, namely that he has been denied a fair and impartial hearing.

Dissatisfaction tends to be contagious. One dissatisfied man is likely to spread dissatisfaction among his friends.

CHAPTER XI

CAUSES OF THE TURNOVER PERTAINING TO THE MEN, AND THE TURNOVER DUE TO MORE ATTRACTIVE OPPORTUNITIES ELSEWHERE

The causes of the turnover pertaining to the men fall into six main groups: (1) lack of aptitude for the work; (2) undesirable attitude toward the work or management; (3) change for the sake of change; (4) sickness or ill health; (5) marriage; (6) death. Only the first three require discussion.

1. Lack of aptitude for the work.

It is impossible to say what percentage of terminations of employment are caused by the lack of adaptability of workers to their jobs. The proportion must vary greatly in different plants according to the quality of the labor supply, the requirements of the work, the efficiency of the hiring, and the efficiency of the training given new men for their work.

The number of men discharged because of incompetence does not indicate the total number of men leaving because of unadaptability. Many men who are misfits are not discharged but resign, giving such reasons as that the work was too hard or the pay too low. Discharges ascribed to incompetence are often due not to lack of ability to do the work but to unwillingness to make the effort to learn it. On the other hand, some men producing little are discharged on account of "laziness" when the trouble actually is that they lack skill.

The problem of hiring competent men is complicated

by the fact that the men in the market for jobs are to a large extent those who are unable to hold jobs. On account of their difficulty in holding jobs they tend to constitute an unusually large proportion of the men seeking work. Failure to exercise care in selection results in many such being hired.

Men out of work are apt to misrepresent their qualifications in order to obtain a job which appeals to them. Attracted by the higher pay they often seek jobs beyond their ability or for which they lack proper training or experience. The failure of modern factories to organize their work, to provide definite avenues of advancement, and to promote along these lines on the basis of merit forces men who are ambitious to improve their condition to leave their employer and to attempt work elsewhere for which they possess little training or experience. The rate of discharge among these men is naturally high.

Few establishments provide carefully planned and carefully supervised instruction for newly hired manual laborers. Inadequate instruction in how to do the work frequently causes men to appear to be incompetent, when, if properly taught, they could do the new job easily.[1]

Lack of adaptability may be due not to deficiency in skill but to physical defects. It is impossible to give definite figures concerning the number of terminations of employment caused by physical unadaptability. Evidence is avail-

[1] I have been unable to secure data on the decrease in the discharge rate following the institution of systematic instruction. The effect is difficult to isolate because the institution of instruction is likely to be accompanied by changes in other managerial policies, such as transition from the "drive" to the "incentive" system, by changes in standards of work (usually an increase in the minimum quantity required and also higher standards of quality), and by improvement in the methods of selecting men and of administering discipline. Then also there are the constant changes in the labor market which materially affect the discharge rate.

able, however, which shows that unadaptability to work on account of physical defects is very prevalent. The Ohio Industrial Commission reports that 6 Ohio plants in examining 8,054 employees on their payrolls found 791, or nearly 9.8 percent, unfit for the work in which they were engaged. In some cases the unfitness was due to diseases which either menaced the health of others or slowly undermined the worker's health without immediately affecting his ability to do the work.[3]

Some indication of the prevalency of defects which unfit workers for their jobs is given by the proportion of rejections among applicants for employment. These, of course, include rejections on account of diseases which may not affect the applicant's immediate efficiency, but their number is usually small. The figures, however, are far from satisfactory. In the first place, there are varying standards of fitness and an applicant who might be regarded as unfit for a given task by one company might be regarded as acceptable by another company. In the second place, the fact that an applicant is given employment, does not indicate that he is fitted physically for the job for which he originally applied. The applicant may be found unsuited for the work for which he was being considered by the employment department, but be hired for something else. The head of the health and sanitation department of an eastern manufacturer of grinding wheels writes that in the 13 months ending February 1st, 1918, they totally rejected 117 applicants, but were able to find

[3] *Bulletin of the Industrial Commission of Ohio,* v. II, No. 6, on "Physical Examination of Wage Earners in Ohio in 1914," p. 17.

There was considerable difference in the definition of an "unfit" employee. Some establishments reported all workers unfit who possessed defects which required correction and which could be corrected. Other establishments reported as unfit only workers whom it was necessary to discharge or to transfer to other work.

other work for 154 applicants who were unsuited for the first job for which they applied. In the third place, some defects such as defective eyesight are easily remedied. Many applicants who are rejected at first are accepted upon having their deficiencies corrected. A large rubber goods manufacturer reports that although 7 percent of the applicants passed by the employment department were rejected on first examination, enough were able to remedy their defects so that the net rejections were less than two percent. The figures do not show to what extent the rejection rate was lowered by applicants through the influence of the medical department being induced to remedy their defects.

Bearing in mind the variation in the rejection rate due to variations in standards of fitness and in the character of the work, the general statement can be made that in most industrial establishments the percentage of applicants accepted by the employment department who are rejected by the medical department is less than five. In the case of railroads, public utilities and insurance companies where the examinations are more thorough and the standards of fitness higher, the rejections are more numerous. Replies to a questionnaire issued by the National Association of Corporation Schools were that a printing establishment rejected 65 out of 2,680 examined in 18 months, or 2.42 percent, a manufacturer of electrical apparatus less than 1 percent, a manufacturer of machinery one-tenth of 1 percent, a specialty manufacturer about 1 percent, a retailer 3 percent, an automobile manufacturer 10 percent. Another automobile manufacturer replied that about 2 percent examined for membership in the benefit society were rejected or required to sign waivers because of defects. On the other hand, two railroads reported rejections of 8 and 10 percent respectively, a public service company 59 out

of 1,500, or 3.9 percent, two insurance companies 13 and from 15 to 16 percent respectively.[3]

A rubber manufacturing company writes me that out of 1,087 examined from March to December, 1915, inclusive, 3 percent were rejected as permanently unfit, and 15 percent as temporarily unfit. Most of the temporary defects and ailments were remedied and the applicants hired. An aluminum reduction plant writes that out of 4,107 examined during 1915, 388, or 9.4 percent, were rejected. An eastern manufacturer of grinding wheels writes that of 6,914 examined in the 13 months from January 1st, 1917, to February 1st, 1918, they rejected 117, or 1.7 percent, because unsuited for any work they had to offer, and gave 154, or 2.2 percent, work for which they were better suited physically than that for which they applied. The head of the Department of Health and Sanitation writes, "I am quite sure that our number of rejections would be much greater than this were it not for the fact that our employment manager knows we will not consider certain types of men in some of our departments where the work is hazardous to the eye, or where it is exhausting in nature."

A silk manufacturer rejected 11 out of 327 examined in a month, or 3.4 percent.[4] The Rike-Kumler Company of Dayton, Ohio, found about 5 percent of all applicants were unfit for service and that an additional 5 percent were employable but in a doubtful class.[5] A manufacturer of sani-

[3] National Association of Corporation Schools, *Proceedings*, 1915, pp. 715-717.

[4] H. L. Gardner of Cheney Bros. before Conference of Employment Managers' Association of Boston, May 10, 1916. U. S. Bureau of Labor Statistics, *Bulletin* No. 202, p. 53.

[5] Frederick H. Rike: "The Need for and Value of Physical Examination of Employees," *Annals of the American Academy of Political and Social Science*, v. LXV, May, 1916, on "Personnel and Employment Problems," pp. 225-226.

tary supplies writes that rejections in their plant run about 10 percent.

The Ohio Industrial Commission reports that 26 establishments rejected 1,040, or 4.5 percent, of 23,118 applicants for employment.[6]

Dr. H. G. Lamson of the Du Pont Powder Company stated at the Industrial Service Conference held in April, 1918, under the auspices of the Wisconsin Industrial Commission that the rejection rate among some 7,000 applicants examined was 1.65 per 100.

An exceptionally high proportion of rejections is reported by the John B. Stetson Company which in the year ending October 31, 1915, rejected 78 out of 311 applicants examined, or 25.1 percent.[7]

Mr. W. P. Barba of the Midvale Steel Company in an address before the Philadelphia local section of the American Society of Mechanical Engineers, reports 391 rejections out of 2,569 examined in 1913—a rate of 15.2 percent. Two hundred and eighty-five of the rejections were on account of venereal diseases or consequences, leaving 106 rejections, or 4.1 per hundred, on account of general causes.[8]

In some cases the proportion of disqualifying defects runs remarkably high. Defective vision is an impairment which is especially likely to be frequent, particularly in work making severe demands upon the vision. Examinations by the United States Public Health Service of 3,107 workers in the cloak and suit and dress and waist industries of New York City, industries in which good vision is peculiarly

[6] *Bulletin of the Industrial Commission of Ohio*, v. II, No. 6, on "Physical Examination of Wage Earners in Ohio in 1914," p. 12.

[7] Milton D. Gehris: "Employment Problems and How the John B. Stetson Company Meets Them," *Annals of the American Academy of Political and Social Science*, v. LXV, May, 1916, on "Personnel and Employment Problems," p. 159.

[8] *Iron Age*, November 25, 1915.

necessary in many positions, disclosed that 1,848 workers or 61.6 percent of the number examined had defective vision.[9] In a large number of cases these defects must have seriously impaired the workers' efficiency. Mr. J. J. McCabe, vice-president of the Imperial Wall Paper Company, reports that 510 examinations among their employees disclosed 122 cases of defective vision.[10] The Norton Company found 208 workers with defective sight among 1,400 examined.[11] These were not all the cases of defective eyes found, but this number needed glasses or a change in glasses.

In May, 1915, the Ford Motor Company instituted a request for transfer. In the next three and one-half months, 1,466 petitions for transfer were received. Three hundred and four applicants were transferred to other departments, 188 were given other work in the same department, and 974 applications were refused. These transfers were made by the medical department for physical reasons and probably do not represent all of the transfers which could have been advantageously made because of physical handicaps. The force at this time was over 15,000.[12]

A "health audit" in the Eaton, Crane and Pike Company showed that out of 599 employees examined, only 5 were normal. Five hundred and ninety-four required advice concerning their living habits or physical condition, 377 were advised to go to a doctor for treatment, and 317 of these 377 disclaimed knowledge of their impairment.[13]

[9] Joint Board of Sanitary Control in the Cloak, Suit and Skirt and the Dress and Waist Industries, *Workers' Health Bulletin*, 1915, p. 11.

[10] "The Maintenance of Human Machinery," *Wall-Paper News and Interior Decorator*, March, 1916.

[11] *Health and Sanitation*, p. 6. Privately printed by the Norton Company, Worcester, Mass.

[12] *Ford Times*, January, 1916, p. 272.

[13] "Why a 'Health Audit' Pays," *Factory*, v. XX, p. 438.

All of the above data indicate strongly the great importance of exact methods of determining the physical adaptability of workers to their tasks.

2. Undesirable attitude of the worker toward the work or the management.

Under this head fall discharges due to failure to make the effort necessary to learn the work properly or to exercise proper care in doing it and discharges due to insubordination and to an intolerable attitude toward the management.

Although many discharges are due to the chronic laziness and general good-for-nothingness of the worker or his unruly nature and the impossibility of getting along with him, many are due not to deep-seated traits in the character of the worker but to industrial conditions.[14] Failure of workmen to make the necessary effort to learn their job and failure to exercise proper care in doing it which bring about so many discharges, are often due not to chronic laziness or carelessness but to dislike of the work or lack of interest in it, caused by such things as the onerous character of the task, low wages, and lack of a prospect of getting ahead; to lack of pride in the work and of the spirit of workmanship; and to hostility to the management which leads the worker to desire to render the least possible service which is necessary for him to hold his job. Insubor-

[14] Human ability and character are of course the most important instruments of production, and in appraising the efficiency of the modern industrial system one must inquire in what respects it encourages and discourages the development of personal characteristics which are valuable instruments of production, how efficient are its methods of developing these characteristics, in what degree are latent abilities undeveloped or unemployed. In short, does modern industry make the investment in skill, knowledge and character highly attractive from a business standpoint to all classes? See a suggestive article on this subject by Professor W. M. Leiserson in the *Survey,* v. XXXI, p. 165.

dination is in a large measure due either to the fact that the worker dislikes his job and cares little whether he loses it or not, or to resentment toward the management aroused by the worker's treatment under the "drive" system.

The habits of laziness, shiftlessness and carelessness which are especially prevalent among youths and boys are in large measure due to lack of training and guidance resulting from the weak parental control over children which is characteristic of the age. This is especially acute among the immigrant population. The clinging by the parents to the ways of the old world causes them to be regarded with disrespect by their children who pick up American manners and who feel that their parents do not understand what is best under the conditions of the new world.

3. Changes due to habitual floaters and to desire for change for the sake of change.

The floaters in indoor work are clearly to be distinguished from the various classes of outdoor seasonal workers which exist in different parts of the country. The outdoor floaters who work in seasonal industries appear to constitute rather distinct and separate classes, to engage to only a slight extent in indoor work, and to be little responsible for the turnover among factory working forces.

Three principal types of floaters in indoor work are to be distinguished:

1. Those who change out of the desire for new experiences, the love of the new and the unknown. The love of the new, the unknown and the unexpected which constitutes the spirit of adventure exists in practically all men, although in widely varying degrees. Just as some men get into a rut so that any substantial divergence from their daily routine causes them acute discomfort, so others are continually hankering for new experiences, and are unhappy without them. To a worker of this type the little changing routine of the highly repetitive, semi-automatic modern factory

work soon becomes unendurable. His pay and his treatment may be satisfactory, the work may be easy, the working place attractive, his fellow workers agreeable, but the job becomes intolerably tedious. He desires new work, new surroundings, new associates. This type of workman rarely remains at a single job for more than three or four months. He covers the continent in his wanderings.

2. Sharply to be distinguished from workers who float because of a love of adventure and new experiences, are those who float because of dislike of work. The former type are often competent, hard working men. They are found among the most skilled workers as well as among the common laborers. The latter are lazy and shiftless. Because they are lazy and shiftless they are usually poor workmen. After a short time at a job the work becomes intolerably onerous to them. The job which they do not have seems easier and more pleasant. They decide that the work is too hard and quit. The reason given for leaving is likely to be something such as "work too heavy," "couldn't stand the work." This type of floater does not cover the country as does the adventurous type. The adventurous type is not satisfied to remain long in one locality. He is as anxious to change localities as to change jobs. The lazy type of floater may never leave a single locality. He returns often to places where he has previously worked and if a good employment department does not exist he may be reemployed.

3. The third type of floaters are boys and young men and to a less degree girls. Among the causes contributing to the large amount of floating among these classes are:

a. The desire for new experiences, the adventurous spirit, which is particularly strong among boys and young men.

b. Their buoyant and carefree spirits submit less readily to the routine and grind of work than those of older men who have been tamed by care, responsibility and the

discipline of work. The grind and irksomeness, therefore, weigh especially heavily upon boys and youths. The rapid changing among them is in a great degree rebellion against the grind of work, an attempt to mitigate its tediousness by change of job, associates, and working place.

c. Much of the work done by these classes of workers is of an extremely repetitive and routine character and therefore highly monotonous. This is particularly true of work done by girls, such as counting, sorting, pasting on labels, wrapping, inserting, packing. The boys do highly routine work on simple machines, such as drill and punch presses, and also in assembling small parts.

d. Boys and youths lack definite aims and ambitions to hold them to a certain line of work or cause them to remain with a particular firm. The Bureau of Labor Statistics found that only 185 out of 353 boy workers investigated, or 52.4 percent, and 120 out of 269 girl workers, or 44.6 percent, had definite ambitions.[15] Of the 185 boys who had definite ambitions only 56, or 30.4 percent, were ambitious along the line of work in which they were engaged. Only 17 of the 120 girls who possessed definite ambitions were engaged in work which gave them an opportunity for realizing their ambition.[16]

[15] "Women and Child Wage Earners in the United States," v. VII, 62nd Congress, 1st session, *Senate Document*, v. XCII, p. 190.

[16] "Women and Child Wage Earners," *Ibid.*, p. 189. Concerning ambitions and definite aims among children, the 1916 *Report of the Bureau of Vocational Guidance* of the Chicago Public Schools says (p. 23): "Each boy and girl who comes to the Vocational Bureau is asked what kind of work he would like to do. 'I don't know,' is the usual reply. It is astounding to find how few boys and girls have any definite idea of what they want to do, and how few parents seem to have any ambitions for their children. 'Any kind of a job will do,' children are repeatedly heard to say; or, 'I want a nice clean job.' 'I have never worked. I don't know what I can do.' 'I want something easy.' 'I want a job where I can learn something.'"

Definite ambition results in stability not only because it holds workers to the job in the face of difficulties and discouragements for the sake of realizing it, but also because it interests them in the work and hence tends to prevent the work from becoming onerous and monotonous. Workers who lack a definite interest in the job are likely to become dissatisfied on account of trivial matters which would be disregarded by one really interested.

e. The younger element is not held by family responsibilities. If they are unable to obtain another job immediately it is not of great consequence to them, but to a married man several weeks or even a week without a job is a considerable hardship. Many children enter industry not because of economic necessity but because they do not wish to go to school.[17]

4. Changes due to more attractive opportunities elsewhere.

Little comment is required upon the changes due to more attractive opportunities elsewhere. In every period of prosperity, changes due to this cause become very numerous. The keen demand for labor in times of prosperity gives workers a much desired opportunity to attempt to improve their condition. All along the line there is an endeavor to

[17] The reasons for leaving school given by 6,758 children to the Chicago Bureau of Vocational Guidance are classified in the 1916 *Report* of the Bureau as follows:

Necessity	2187	32.4 percent
Earnings desired but not needed	1507	22.3
Dissatisfaction with school	2025	30.0
Preferred work to school	301	4.4
Graduate (from 8th grade)	381	5.6
Could not afford books to go to high school	231	3.4
Other causes	126	1.9
Total	6758	100.0

move up. The truckers and laborers seek simple machine work or bench work at which they are paid by the piece. The lower grades of semi-skilled hands seek higher paying grades of work, helpers and handymen seek machines of their own, machine hands performing simple operations or making rough cuts seek jobs at more complicated operations and at finishing. Some of the highest grade of semi-skilled hands undertake to do tradesmen's work.

The effect of this moving up process upon the turnover is three-fold. A change is caused first by the workers' leaving their original jobs. The vacancies thereby created frequently are difficult to fill satisfactorily, especially during times of prosperity when good labor is scarce. Finally, the workers who leave because of more attractive opportunities often find they have undertaken something beyond their ability and either resign or are discharged.

The wastefulness of this "try and try again" process of advancing to a better position is self-evident. The worker does not know in detail the nature of the job which he is obtaining nor does he know his own capacities. Nevertheless it is the principal method by which workers at the present time improve their condition on their own initiative. Some workers, it is true, obtain better jobs by asking the foreman for a specific job which attracts them, and if the worker has a good record and the job is not too difficult the foreman usually is willing to give him a chance when a vacancy occurs. The relations between men and management in most shops, however, are not such that this practice is very general and in the nature of things it cannot be general for the management cannot base promotion upon the requests of workers. The only adequate substitute for the present wasteful "try and try again process" is promotion by merit along systematically determined lines of advancement combined with systematic instruction in the

new work. These methods are discussed in subsequent chapters.

It should be noted that the difficulties which attend the change by a worker to more exacting work in another plant and which are responsible for the great wastefulness of this method of winning advancement are also a deterrent to changing, especially among the better class of semi-skilled workers. These workers are naturally interested only in work of a somewhat exacting nature as only such jobs pay enough to attract them. Because of their narrow training their success at such work is uncertain. On account of their narrow training also, they find it more difficult in case of failure to obtain a job paying as well as the job they hold. The better grade of semi-skilled workers, moreover, are older than the less skilled and usually have families to provide for. For all of these reasons the better grade of semi-skilled workers are less attracted by better paying jobs in other plants than the lower grades and the common laborers, who perform tasks involving less proficiency, who run less risk of failing at the new job, and who in case of failure can more easily find work within their ability to do and paying the wages to which they are accustomed.

PART IV

METHODS OF REDUCING THE TURNOVER

CHAPTER XII

SURVEY OF WHAT A NUMBER OF ESTABLISHMENTS HAVE ACCOMPLISHED IN THE REDUCTION OF THE TURNOVER

The means of reducing the turnover may be divided into: (1) those which are effective only when applied by individual employers or small groups of employers; (2) those which can be applied by individual employers effectively but are also effective when used by employers in general; (3) those means which absolutely require the coöperation of large numbers of employers or the effectiveness of which is greatly enhanced when applied coöperatively by large groups of employers.

In the first class fall those methods which consist in making the plant a *relatively* desirable place to work—such as raising wages or reducing hours. As more plants adopt the same methods, the advantage of the few plants possessing them is destroyed and their effectiveness in promoting stability is impaired.

Into the second class fall many methods of regularizing employment and reducing sickness and accident rates, and all methods which eliminate causes of dissatisfaction among the workers, such as improved employment methods and methods of instructing new workers, improvement of physical conditions of work, better methods of handling men. The methods of removing causes of dissatisfaction among workmen are enhanced in effectiveness in reducing the turnover in so far as they render a particular plant a relatively desirable place to work, and to this extent, like methods of

the first class, their effectiveness is diminished as other plants adopt them.

Into the third class fall many of the means of regularizing employment—such as united action within an industry to induce customers to place orders in advance, to eliminate extremes in styles, to prevent violent fluctuations in price and the resulting fluctuations in employment.

The limits of this study render unfeasible discussion of methods of the third class which can be more advantageously analyzed in studies of unemployment. The problem of reducing the turnover will be analyzed here as it presents itself to the individual employer—as a problem how he, by independent action, can bring about a rather immediate reduction in his turnover. All of the principal known means of reducing the turnover which are at the disposal of the individual employer will be analyzed regardless of whether or not their adoption by all employers would largely destroy their effectiveness.[1]

The problem of reducing the turnover is so much a peculiar problem to each particular establishment that the reduction accomplished by any given plant is no indication of the reduction which may be possible in another. A survey of the success which has attended efforts to reduce the turnover is desirable, however, because while it throws little light upon what reduction is possible in any *particular* establishment, it indicates what results *in general* are possible.

[1] We cannot assume that the effectiveness of higher wages or shorter hours in reducing the turnover would be *entirely* destroyed if the higher wages or shorter hours prevailed in all plants. To a considerable extent the turnover is a reaction of the workman against the dreariness and drudgery of his life. In so far as life is made more worth while to him by increasing his leisure time and by enabling him to live better, his stability may be increased. Concerning these matters we can only guess.

In considering figures purporting to show reductions in the turnover, the reader must be reminded that changes in the stability of workmen may be due to two classes of causes —internal causes, due to conditions and relations within the plant over which the management has considerable control, and external causes, due to outside commercial and industrial conditions over which the management has little or no control. In order to judge the results which the management by changes within the plant has been able to accomplish it is necessary to discount the effect of external conditions. By far the most important of these external conditions are changes in the labor market. The decided effect of changes in the demand for labor upon the turnover were pointed out in Chapter III, Section 1. These changes are constantly occurring and the stability of labor is constantly changing on account of them. It is, therefore, impossible to judge the effect of managerial policies upon the turnover by comparison of any two years unless the actual change in the turnover has been the *opposite* of that which the changes in external conditions during the period would be expected to produce.[2] If a comparison is made of the turnover rate for a series of years, the reduction should go on more or less continuously regardless of the ups and downs in the demand for labor. If the trend of the labor market during the entire period should be a weakening demand for labor, it would be extremely risky to attribute a decrease in the turnover to the management.

[2] That is, if there has been an *increase* in the demand for the particular kind of labor under consideration in the period in question, leading us to expect an *increase* in the turnover, and if the turnover in the plant has actually *decreased,* we are justified in crediting the decrease to whatever efforts the management may have made to decrease it. But if there was a decrease in the demand for labor such a conclusion would be very precarious.

The following figures furnished by an eastern laundry are a striking example of a substantial reduction in the turnover:

Year	Approximate size of force	Total number quitting	Percent of total quitting to force	Number discharged	Number leaving on account of matrimony	Number resigning for reasons other than matrimony	Percent of the estimated force resigning for reasons other than matrimony
1911	225	378	168.0	78	3	297	132.0
1912	250	277	110.8	109	7	161	64.4
1913	250	184	73.6	51	10	123	49.2
1914	250	167	66.8	40	9	118	47.2
1915	310	140	45.2	43	13	84	27.1

The decrease in 1914 was undoubtedly caused in part at least by the depression. Notice, however, that 1913, which was a year of greater labor demand than either 1911 or 1912, has a decidedly lower turnover than either of those years. The turnover of 1915 might be expected from external conditions to be about the same as that of 1914, or probably somewhat larger. Actually it was decidedly lower.

In 1912 this firm moved into a new building, a model for light and air, with the most modern devices for mitigating steam and heat. During the entire period the firm was carrying on and perfecting its "efficiency" work. The average individual earnings for all workers in 1915, the president tells me, were $3 per week higher than in 1911. Each worker receives two weeks' vacation with pay. During the period 1911-1915 the working day was reduced from 8½ to 8 hours, overtime was greatly reduced by dividing each day's work into lots, by scheduling the lots so that it is possible to tell at any moment whether a department is ahead or behind its schedule, by creating an emergency squadron trained to do all operations which is sent to help departments which are behind in their schedule, by regularizing the work by persuading customers to send in week-end deliveries instead of concentrating their deliveries at

the first of the week. Two ten-minute rest periods were instituted so that the actual working time is 7 hours 40 minutes. A factory committee to which the workers elect representatives considers complaints and makes suggestions for improvements. There is a lunch room which provides meals at cost.

The most significant thing in this plant is the attitude of the management toward its employees. The management does much more for its employees than most employers do and probably more than would be considered good business if judged by the standard of the greatest possible profit to the management. The improvements which the management has made for the betterment of workers have been made not as palliatives for low wages, not in an endeavor to lull workers into satisfaction while the management takes advantage of them, but because of the fact that the management has believed that in making them it was only running the business as it should be run. The management does not pretend that it can show a return in dollars and cents for every extra expenditure made for the workers' welfare, but it maintains that the principle is wrong that the purpose of the business is simply to show the maximum possible return to the investors. The purpose of the business is to produce benefits for the workers as well as for the stockholders, and the business man who runs his business as he should, must take into account the right of the workers, as well as the right of the stockholders, to benefit from the business. As the president stated to me: "Our welfare work cannot be separated and considered as if it were a thing distinct from the business itself. My aim is to run the laundry business in the best way possible. To my mind this sort of thing is just part of the business. I've never been able to think of it in any other way. I don't like to think of it as something grafted on." The president remarked, however, concerning the unusually high wages

paid by his company that "if we didn't put the extra money in the envelopes, we wouldn't have it to put there."

An eastern automobile manufacturer who has devoted special attention to reducing the turnover furnished me with the following figures indicating the progress made:

Year	Size of force	Changes in labor force		Percent of changes to whole number on payroll
1911	934	Resigned	444	47.5
		Laid-off	158	16.9
		Discharged	86	9.2
		Total	688	73.7
1915	1,120	Resigned	237	21.2
		Laid-off	120	10.7
		Discharged	50	4.3
		Total	407	36.3

In spite of the increase in the size of the force the actual number of changes for each of the causes substantially decreased.

We would naturally expect the turnover to be less in 1915 than in 1911 on account of the smaller demand for labor. The reduction of the turnover, however, is the result of a consistent decline taking place throughout the period regardless of market conditions. The automobile industry was also affected less by the depression of 1914 than most industries and the demand for semi-skilled and skilled workers in the industry was good.

This firm was engaged in the installation of "scientific management," resulting in better working conditions and better instruction of the men. The manager says that in his opinion the two greatest factors in the reduction of the turnover were the removal of the right of discharge from the supervisors and placing it in the chief factory executive and the regularization of work. The latter was accomplished according to the manager (1) by scheduling

the product under an elaborate control system, coördinating production in all departments so that when output is increased it is uniformly accelerated and when decreased uniformly retarded; (2) by providing extra bonuses to the selling force to increase sales in the winter months. The firm has a system of transferring men from slack to busy departments, their qualifications having been determined and recorded for the purpose. The average number of weeks worked by the force in 1911 was 46.8, in 1915 50.4. This excludes all shut downs for inventory and holidays.

An eastern printing and binding establishment furnishes me with the following data concerning the reduction accomplished in its turnover from 1912 to 1915:

Year	Size of force	All terminations of employment		Resignations		Lay-offs		Discharges	
		Number	% to force	Number	% to force	Number	% to force	Number	% to force
1912	701	258	36.8	151	21.6	63	9.0	44	6.3
1913	562	177	31.5	81	14.4	56	10.0	40	7.1
1914	533	150	28.1	47	8.8	80	15.0	23	4.3
1915	436	77	17.7	36	8.3	.....	.....	41(a)	9.4(a)

(a) Includes lay-offs.

Here again the smaller demand for labor in the last two as compared with the first two years distorts the figures. The decrease in the rate in 1913 as compared with 1912, and in 1915 as compared with 1914 indicates, however, that a real reduction due to internal causes was occurring.

This firm began the installation of "scientific management" in 1910 and the installation was in process during most of this period. Great care is exercised in selecting help, each person usually being interviewed twice before being hired, the traditional foremanships have been abolished and intensive supervision of workers has been established by creating group supervisors each of whom has a

group of ten to twelve workers whom it is his duty to help and instruct but over whom he has no disciplinary authority. A service department has been established which has developed welfare activities and which endeavors to maintain close contact with the workers, sees that proper assistance is rendered to those in need of special attention, handles difficulties, grievances, etc. Disciplinary authority is vested in the service department. Attempts are made to regularize employment by securing orders in advance. A large part of the business is in school books, the busy season for which falls in the summer months. Special efforts have been made to get books which can be published in the winter. A transfer system has been established and workers have been taught several operations to render them available for transfer. The close personal contact between the service department and the workers is a noteworthy feature of this establishment.

An eastern street railway system has made the following substantial reduction in the turnover among motormen and conductors:

Year	Total motormen and conductors hired	Motormen hired	Conductors hired	Total motormen and conductors leaving
1908	4,671	1,364	3,307	....
1909	4,835	1,636	3,199	....
1910	4,967	1,722	3,245	....
1911	4,501	1,390	3,111	4,153
1912	2,921	922	1,999	2,840
1913	2,541	801	1,740	2,363
1914	1,511	380	1,131	1,719
1915	1,443	358	1,085	1,438

An important factor in bringing about this reduction has been the development of cordial personal relations between the company and the men. This has been largely due to the superintendent of transportation, a man of exceptional

personality who believes that loyalty can be obtained only by those in charge taking a genuine personal interest in the men. The genuine and intense personal interest which the superintendent of transportation takes in his men has affected the spirit of the entire organization.

The power to discharge has been taken from the inspectors and division superintendents and vested in the superintendent of transportation. A plan of handling grievances has been established by which the afternoon of a certain day of each week is appointed a regular time for men with complaints which the division superintendents have failed to adjust to appear before the superintendent of transportation. Car barns have been provided with recreation facilities and an extensive system of social clubs, run by the men, has been developed. These clubs are very active and very successful. Applicants for motormen's and conductors' jobs are carefully investigated by special investigators before being hired. Several years ago a system for securing new workers through the recommendations of men on the payroll was instituted. A close follow-up system extending over the first three months of every worker's employment has been established to assist in tiding new men over the critical breaking-in period. The business of this company is less in the summer than in the winter. As some of the men desire to work in the sea-side hotels or on farms, the company instituted a plan of granting such men as desire it a three months' leave of absence during the summer months. In 1915, 281 men secured leave of absence. On January 1, 1911, this company inaugurated a welfare plan which without cost to the workers provides a sick benefit of $1 per day after the first week up to 90 days to all employed 30 days or more, insurance of $300 upon the life of each employed a year or more and a system of pensions.

The Boston Elevated Railway reduced the number of

uniformed men leaving the company from 2,362 during the year ending March 31, 1912 to 1,166 during the year ending June 30, 1914, or 51.6 percent.[3] Since these figures were published, the company has still further reduced its turnover. During the year ending June 30, 1915, 837 uniformed employees left the service and during the eleven months ending May 31, 1916, only 674, or at the rate of 735 per year. The above figures include employees promoted, transferred, pensioned, and deceased as well as those resigning or laid-off. This reduction is noteworthy because it continued consistently during the increasing demand for labor in the latter part of 1915 and in 1916. Important factors in accomplishing this reduction were greater care in selecting and training men and a reduction in the number of "extra" runs and split time runs by rearrangement of schedules. The number of "extra" runs was reduced from 585 to 460 and the number of "extra men" by about 400, or 10 percent of the total number of men required by the schedules.[4] The "extra" runs are given to new men who must wait around the barns long hours in order to secure a run. This naturally increases the turnover among new men.

The Philadelphia Rapid Transit Company brought about the reduction in the turnover among its trainmen shown by the figures on page 233.[5]

Following a strike in 1911 wages were raised and a plan was adopted whereby 22 percent of the gross passenger receipts of the company are set aside in a separate fund for the payment of motormen and conductors and for the

[3] *Safety on the Boston Elevated Railway.* Data presented to American Museum of Safety in competition for Anthony N. Brady Memorial Gold Medal, pp. 22, 23.

[4] *Ibid.*, p. 22.

[5] *Electric Railway Journal,* v. XLII, p. 84, and v. XLIV, p. 22, and Prof. T. Conway, Jr., "Solving the Labor Problem in Philadelphia," *Electric Railway Journal,* v. XLVIII, p. 968.

Year	Number of resignations	Number of discharges
1906	3,226	1,287
1907	3,922	1,374
1908	2,853	2,038
1909	1,494	1,075
1910	3,787	2,376
1911	1,390	1,635
1912	913	855
1913	956	536
1914	337	334
1915	175	142
1916	275	117

payment of pensions and death benefits, thus enabling the men to share in the increased prosperity of the company. Under this plan numerous increases have been made in wages. Between 1911 and 1914 the following increase took place:[6]

Duration of service	Wage per hour for men of respective periods of service		Percent increase
	In 1911	In 1914	
Less than 1 year.....	22¢	25¢	13.6
1 to 2 years.....	23	26	13.0
2 to 3 years.....	23	27	17.4
3 to 4 years.....	23	28	21.7
4 to 5 years.....	23	29	26.1
5 years and over.....	23	30	30.4

By 1916, the wages of new men had increased to 27 cents per hour and the wages of others one cent an hour above this for each year of service above one and up to five.[7]

A coöperative committee composed of representatives elected by the men, of the superintendent of transportation and of the division superintendents was created. One of

[6] *Ibid.*, v. XLIV, p. 123.
[7] Prof. T. Conway, Jr., *op. cit.*, v. XLVIII, p. 968.

the duties of this committee is to hear grievances. The schedule of runs was revised. The company determined the number of cars necessary to serve the public at different hours, and on this basis the coöperative committee was permitted to work out the runs. The committee adopted as a basis that regular runs should constitute 9 to 11 hours of service within 14 hours. Service formerly in some cases was spread over 15 hours or more. Arrangements were made to purchase uniforms directly from two wholesale houses under contracts approved by the coöperative committee, giving the men better uniforms at a lower price. In November, 1912, a beneficial association was formed. The association pays sick benefits of $1 per day up to 100 days after the first week of illness and a death benefit of $150. It also operates a coöperative buying plan whereby members are enabled to make purchases at certain stores at a saving of 8 percent on standard regular prices. The entrance fee is 50 cents and monthly dues 25 cents. The company contributes an amount equal to the entrance fees and the dues paid each month and bears the expense of the management. In 1913 approximately 90 percent of the eligible employees were members.[8] As a result of the improved relations between the men and management, an attempt by the union to organize a strike in 1916 was a total failure.

A southern street railway company, by more careful selection and training of men and a policy of showing consideration for the men and endeavoring to cultivate their good will, materially increased the permanency of the trainmen. The figures on page 235 show the results.[9]

In 1909 less than one seventh (13.5 percent) of the trainmen had served three years or more, but in 1915 over one half (50.3 percent) had served for three years or over.

[8] *Electric Railway Journal*, v. XLII, p. 84.

[9] Personal letter from superintendent of transportation.

Duration of service	Percentage of trainmen in company's employ for specified periods	
	1909	1915
One year or less	58.2	23.9
One to two years	16.4	14.7
Two to three years	11.9	11.0
Three to four years	5.5	11.7
Four to five years	1.5	11.0
Five to six years	0.5	9.2
Over six years	6.0	18.4

The turnover rate among trainmen in 1909 was 136.8 percent, in 1915 46.2 percent, but this latter rate was influenced in part by the depression of that year.

A case of turnover reduction remarkable because it has to do with a class of labor proverbially unstable is that accomplished by an eastern railroad among its section hands. Figures of the size of the turnover before the systematic efforts to reduce it are not available, but it is known to have been large. The substantial amount of the reduction, however, is indicated by comparing the turnover after the reduction had taken place with the turnover among the same class of help on other railroads. Figures from 14 roads located in the east, middle west and southwest show that they employed a total average force of 62,897 men in the maintenance of way and structures, the bulk of whom were engaged in maintenance of way.[10] In the same years to which the figures of the size of the force refer, these roads lost 127,543 workers employed in maintenance of way and structures, a turnover rate of 202.8 percent. The lowest turnover rate among the main-

[10] In the case of 7 roads the figures are for 1914, of 4 for 1913, and of 3 for the year ending June 30, 1914. The figures of terminations of employment and figures for variation in the size of the force on these roads given below are in every case for the same period as the figures of the average size of the force.

tenance of way and structures employees of the 14 roads was 81.5 percent. In only 3 cases out of the 14 was the turnover rate less than 100 percent.

The road in question employed in 1914 an average force of 1,186 in the maintenance of way and structures and lost from this force during the year 491 men, a turnover rate of 41.4 percent or substantially *one half* the rate for the lowest of the group of 14 other roads. In 1915, out of a force of 692 men engaged in maintenance of way and grounds alone, this road lost 243, or 35.2 percent.

The systematic effort to reduce the turnover was begun as a result of the conviction that a trackman is not a common laborer but that his work requires special knowledge and proficiency and that it, therefore, should be done not by transient laborers who have little experience at it and know little about it, but by experienced specialists.

When the plan of stabilizing the section force was started in 1913, the force was reduced about 20 percent by dropping the least desirable men. The wages were raised from 15 cents to 17½ cents per hour. The foreman's and sub-foreman's wages were also raised. A particular effort was made to make the men understand that the company, instead of permitting the force to fluctuate with the seasons, intended to stabilize employment and that satisfactory men would have steady jobs.

Under the old plan of work the period from March until July 1st, when tie renewals were being made, was a rush period. It was not unusual to have as many as 6 or 8 extra men on a gang, who of course were dropped as soon as the renewals were completed. Under the new plan tie renewals are distributed throughout the year. The renewals begin early in the fall after the heavy summer traffic and continue as late as weather conditions permit. The superintendent of way and structures says that there is scarcely a month when ties are not laid. Considerable

maintenance work is possible during the winter. Fence repairs are concentrated as much as possible during this period. During the winter the working hours are 9 per day, during the rest of the year 10.

The effect of the regularization of work is shown by the variation in the size of the force and by the number of lay-offs in comparison with the variation in the force and the number of lay-offs on other roads. During 1914 the maximum number of men on the payroll of the maintenance of way and structures by this railroad was 1,222, the least number 1,134, a variation of 88, or 7.8 percent, of the minimum number on the payroll and 7.4 percent of the average number. On fourteen other railroads, however, the maximum force employed in the maintenance of way and structures was 86,983, the minimum 44,972, a difference of 42,011, or 93.4 percent of the minimum force and 66.8 percent of the average force. The least variation in the size of the maintenance of way and structure force of any of the other 14 roads was 32.6 percent of the minimum force and 27.6 percent of the average force.[11] The number of lay-offs among the maintenance of way and structure employees on the road in question was 113, or 9.5 percent, of the average force of 1,186. The total lay-offs on 13 other roads[12] among maintenance of way and structure employees were 51,871, or 96.9 percent, of the total average forces of 53,552. The least percentage of lay-offs to average force on any of the 13 roads was 14.8 percent. Only 23.0 percent of all terminations of employment on the road in question were caused by lay-offs, but on the 13 other roads lay-offs constituted 45.6 percent of all changes.

A second factor of tremendous importance in reducing

[11] These figures in case of every road are for the same years as the figures of the average size of the force given above.

[12] Figures for the number of lay-offs on one road were not available.

the turnover has been the loyalty to himself which the head of the department has been able to arouse and the pride and enthusiasm in the work which he has succeeded in instilling in the men. The first is a result of the deep personal interest which the head takes in his organization, the second a result of the high standards of workmanship upon which the management insists. The strong insistence upon high quality of workmanship is reflected in the high discharge rate. In 1914, 194 of the maintenance of way and structure men, or 16.4 percent of the average force of 1186, were discharged. Thirteen other roads in the respective years for which figures were available discharged a total of 5,748 men or only 10.7 percent of their average total force of 53,552 men. On only two roads did the discharge rate exceed the rate on this road. In 1915 among the maintenance of way men alone there were 102 discharges or 14.8 percent of the average force of 692.

Mr. Richard A. Feiss gives the following figures showing the reduction in the turnover brought about in the Clothcraft Shops.[13] The figures refer to the numbers *hired* rather than to the terminations of employment.[14]

[13] "Personal Relationship as the Basis of Scientific Management," *Bulletin of the Society to Promote the Science of Management*, v. I, No. 6, p. 14; *Annals of the American Academy of Political and Social Science*, v. LXV, May 1916, on "Personnel and Employment Problems," p. 52.

[14] Calculating the turnover on the basis of the number hired during a period such as this when the size of the force was decreasing is misleading, because the number of men who leave during such periods is greater than the number hired. It is impossible to discover the number leaving from the above figures, because the number on the payroll at the beginning and end of each year is not known, but only the average standing payroll for each year. Mr. Feiss states that the number of terminations of employment in 1914 was 432, considerably more than the number of men hired, 291. Against this is to be balanced the fact that in 1910 and 1911, when considerable reductions in force were evidently occurring, the

Although the depression in 1914 undoubtedly had much to do with the very marked decline as compared with 1914, the steady reduction in previous years indicates the success of the firm's efforts.

Year	Average Standing Payroll	New Hands	Percent
1910	1,044	1,570	150.3
1911	951	807	84.8
1912	887	663	74.7
1913	874	569	65.1
1914	865	291	33.5

During this period Mr. Feiss states that the weekly working schedule was reduced from 54 to 48 hours and that the average individual weekly wages increased 37 percent —in themselves a sufficient explanation of the reduction in the turnover.[15] The firm gives great care to the selection of workers, usually requiring before hiring two interviews and a careful physical examination. Competent instruction of new employees is provided by a special corps of instructors. Cases of failure to attain proper efficiency are intensively investigated. The service department learns of home conditions of employees and endeavors to establish contacts with their homes by visiting the home of nearly every new employee.[16] All absentees are visited, as such visits often reveal cases in need of attention. Medical advice and aid is given employees. Meals are served at cost, in-

number of terminations of employment also must have exceeded the number hired by substantial amounts. The figures, in spite of their unsatisfactory character, indicate a substantial reduction in the turnover.

[15] *Bulletin,* p. 15; *Annals,* p. 56.

[16] See an excellent article by Miss Mary Barnett Gibson, Employment and Service Superintendent, in *Annals of the American Academy of Political and Social Science,* v. LXV, p. 277, for an account of this work.

door and outdoor recreation facilities are provided, and recreative and social activities fostered. The firm has regularized its work by pushing in its advertising staple numbers which can be made in the slack season. Workers are encouraged to learn more than one operation and are paid a retainer while learning in order that fluctuations in the force may be lessened by transferring workers from slack to busy departments.[17]

The outstanding characteristics of the conditions in this shop may be summarized as follows:

1. The care with which the betterment work has been conceived and carried out.

2. The excellent economic situation of the workers and the fact that the betterment activities of the management are largely designed to better the economic situation of the workers rather than make them contented with unsatisfactory economic conditions.

The Dennison Manufacturing Company has substantially reduced its turnover as the following figures furnished by Mr. P. J. Reilly, the employment manager, show:[18]

Year	Percentage of resignations, layoffs, and dismissals to the force
1911	68
1912	61
1913	52
1914	37
1915	28

[17] This summary is based on Mr. Feiss's excellent article referred to above on "Personal Relationship as the Basis of Scientific Management."

[18] Letter to the writer. Published also in "The Work of the Employment Department of Dennison Manufacturing Company," *Annals of the American Academy of Political and Social Science*, v. LXV, May 1916, on "Personnel and Employment Problems," p. 93.

Among the methods used by this firm to reduce the turnover were:[19]

1. Analysis of the requirements of each job.
2. Careful selection of applicants.
3. Systematic training of workers in some departments.
4. Systematic promotion of workers.
5. Careful investigation of the causes for leaving.
6. Regularization of work by (a) obtaining orders farther in advance; (b) introducing new specialties to fill in gaps; (c) substituting stock items for specials; (d) scheduling work.
7. Transfer of help from slack to busy departments.

In 1897 only 37 percent of the hat sizers of the John B. Stetson Company worked steadily during the entire year. A bonus of 5 percent was offered to those who worked steadily from Christmas to Christmas, and resulted in 50 percent of the men working steadily during the entire year. The next year, when a 10 percent bonus was offered, 67 percent of the men worked steadily; in 1901, when 15 percent was offered, 88 percent remained; and since 1903, when 20 percent has been given, practically 100 percent of the men have worked throughout the year.[20]

[19] Before the convention of the National Association of Corporation Schools, Mr. Reilly mentioned as methods by which the turnover was reduced:

(a) Carefully studying the requirements of each job.
(b) Analyzing the information furnished by each applicant.
(c) Keeping a record of tangible values of each employee.
(d) Carefully weighing the reasons given by employees for leaving service.

The first he stated, in his opinion, was the most important. (*Proceedings of the National Association of Corporation Schools*, 1915, p. 760.)

[20] Milton D. Gehris, Paymaster, "Employment Problems and How the John B. Stetson Company Meets Them," *Annals of the American Academy of Political and Social Science*, v. LXV, May 1916, on "Personnel and Employment Problems," p. 157.

The plan has been extended to other classes of employees with success.

An eastern piano manufacturer, by giving particular attention to his employment and personal problems, reduced his turnover from about 7,000 in the year 1913 to 1,935 in 1915. The force in both years averaged about 3,500.

On January 1, 1913 a bonus plan was started in this plant under which a bonus of 2 percent of earnings is paid during the first year and 4 percent during the third year. The bonuses are paid in semi-annual instalments on January 1st and July 1st. The desirability of a stable force, which previously had not been emphasized, was made a matter of policy and its importance impressed by superior officials upon the superintendents and foremen. Foremen were required to report to the employment office the reason for each termination of employment. Monthly turnover reports were sent to the president.

The employment manager of a Detroit automobile company writes me as follows:

"Four years ago the hire and fire system was in vogue with us. If a man was needed for a certain department the foreman would hire him; if needed no longer he was fired. Our 'turnover' at that time was about 300 percent to maintain a working force of six thousand. The next year the 'turnover' had been reduced to about 200 percent, an Employment Department having been looking into the matter of 'turnover' about six months of this year. In the year 1914 the 'turnover' was 74 percent."

Although this reduction was in part due to the depression beginning late in 1913, there is no doubt that in great measure it was also the result of conscious effort. Hiring was done much more carefully by the employment department than by the foremen. No worker was permitted to be laid off, either temporarily or permanently, without the consent of the employment department. The employment

department was able to transfer many workers no longer needed in their original positions instead of hiring new men. All men resigning were interviewed by the employment department. By this means conditions in need of correction have been discovered and a wholesome check placed upon arbitrary and tactless methods of foremen. Finally the supervisor of labor has given particular attention to instructing the foremen in methods of handling men. Each foreman was carefully observed, a private conference was held with him at which criticisms of his methods and suggestions for improvements were given him.

An important factor in the success of the work in this firm is the peculiar qualifications of the labor supervisor. Besides being a man of exceptional enthusiasm and of ability to impart his enthusiasm to others, he is one of the oldest employees of the firm, senior in service to most of the foremen, thoroughly familiar with conditions in the plant, and was well known to and popular with foremen before undertaking the employment work. He is a practical mechanic and production man and therefore trusted by the foremen to an extent one not a mechanic could not be, since they know that he understands their problems from their own point of view.[21]

In addition to establishments which in recent years have accomplished substantial reductions in their turnover, there are a number of establishments which have maintained their turnover at an exceptionally low level for a long

[21] The exceptionally high wages paid by the Ford Company render the effects of its profit sharing plan upon the turnover of less general interest than had the advance in wages been smaller, for the results were a foregone conclusion. The following table from *Bulletin of the Bureau of Labor Statistics,* No. 208, p. 115, on "Profit Sharing in the United States," and on figures in the *Ford Times* for February, 1917, p. 310, shows the effect of the increase in wages and the reduction in hours from 9 to 8 per day, which took effect January 1st, 1914. The figures given for the average

series of years. A notable instance of such an establishment is a large Chicago metal working plant. The turnover in this plant for a series of years was as follows:

Year	Average force	Number leaving	Turnover rate
1908	3,576	1,191	33.3%
1909	4,157	1,583	38.1
1910	5,019	2,372	47.3
1911	4,916	1,744	35.5
1912	5,005	2,107	42.1
1913	5,227	2,679	51.3
1914	4,814	888	18.4
1915	4,768	1,026	21.4
1916	5,994	4,206	70.2

The total number of men leaving during the period was 17,796, the total of the average forces 43,476, giving an average rate for the entire period of 40.9 percent.

This low turnover rate is especially remarkable because the firm is located in Chicago, an active labor market offering many other opportunities for work in the same general line as the work in this plant and also because the work in large measure is hard and heavy, approximately one third of the men, according to the employment manager, being employed in foundries. Although this plant employs a large number of semi-skilled workers of considerable proficiency, the number of tradesmen employed is relatively small, being 10 percent of the entire force in 1913.

force in 1916 are not the average monthly force, but the average of the force in January, 1916 and 1917, which was 23,342 and 42,432 respectively.

Year	Average force employed	Total leaving	Turnover rate	Resignations	Lay-offs	Discharges
1913	13,623	50,448	370%	39,575	2,383	8,490
1914	12,115	6,508	54	5,199	385	926
1915	18,028	2,931	16	2,871	23	27
1916	32,888	7,512	23	.....	.....	.....

The principal factors contributing to hold down the turnover appear to be:

1. A liberal wage scale slightly above the market.

2. Payment of a bonus of 10 percent of the worker's earnings at the end of the year to all workers in service continuously throughout the year.

3. Exceptional care in selecting help. The standards maintained by this company in hiring are among the highest in the country. Until the recent labor scarcity no applicant was hired until his references had been heard from. The employment department aims to hire no one for a job which will not pay him at least as much as he previously secured, and prefers to hire those to whom the job means an advance. The plan of having employees recommend desirable friends is highly developed at this plant and applicants so recommended are preferred. The company was one of the pioneers in medical examination of applicants.

4. Filling vacancies in so far as possible from within the ranks has long been the policy of this firm. The knowledge that there is a future for good workmen in the plant has exerted a strong influence upon the stability of the force.

5. Steadiness of work. The force is not increased or decreased to meet temporary fluctuations of business. During the depression of 1914-1915 the hours of work were lessened to avoid laying off men. The steadiness of employment is shown by the small number of lay-offs, which in 1908 were 223, in 1909, 31, in 1910, 305, in 1911, 296, in 1912, 73, in 1913, 188, in 1914, 27, in 1915, 240, and in 1916, 85.

6. Payment of sick benefits without assessment of employees.

7. Medical advice and aid furnished without cost.

8. Cleanliness and good ventilation of works which have long been a hobby of this firm.

9. The company has sought to bring honor to long continued service by the organization of a "Veterans' League."

10. The company pensions old and disabled employees, each case being considered on its merits, and provides for the dependent widows and children of employees.

11. The attitude of the management towards the workers. The management has had the welfare of its men genuinely at heart. It has realized that the greatest need of workers is liberal wages and that the payment of liberal wages is the first and most important piece of welfare work. The employment manager states that in 55 years the company has had only one strike and that of short duration. The reputation of the company as a good employer is such that the employment manager states he rarely has to advertise for help and that in times of labor scarcity he has had desirable men waiting for jobs whom he could not use, while other plants were asking him to send them men.

Another example of a low turnover which has been maintained for years is furnished by an eastern textile mill. The following is the turnover rate since 1908:

Year	Size of force on January 1 (*a*)	Terminations of employment	Turnover rate
1908	3,316	606	18.3%
1909	3,230	748	23.2
1910	3,611	909	25.2
1911	3,895	999	26.7
1912	4,064	973	23.9
1913	4,074	1,350	33.1
1914	4,354	1,152	26.5
1915	4,583(*b*)	1,679	36.7

(*a*) As figures for the average force employed except for 1915 are not available the turnover is calculated on the basis of the number employed on January 1st. This slightly overstates the turnover as the force was gradually increasing.

(*b*) This figure is the average force for the year.

Up to 1915 the foremen had the right to hire and fire. The low turnover in this plant, therefore, occurred under the old fashioned hiring methods. One of the principal causes for the low turnover is that the establishment is located in a small town in which it is the only large industry. To leave the plant, therefore, meant in many instances to leave the community. Many of the workers enter the mill when young and never work anywhere else. They bring their children in when they are old enough to work. Stability has become a community habit. Nearly half (47.8 percent) of the force on June 1, 1915, had been employed five years or more and 28.0 percent had been employed 10 years or more, a truly remarkable record. The firm has been liberal with its workers. It has built a model industrial town to improve their condition.

A third example of low turnover long maintained is furnished by a middle western manufacturer of windmills, pumps, and gasoline engines. The turnover in this plant has been as follows:

Year	Average force	Number leaving	Turnover rate
1906	120	60	50.0%
1907	145	67	46.2
1908	148	20	13.5
1910	180	43	23.9
1913	160	57	35.6
1914	162	70	43.2
1915	154	25	16.2
1916	181	38	21.0
1917	206 [22]	62 [22]	....

This plant is located in a country town of about 3,000. Practically all of its help comes from the neighboring farms. It at all times has a waiting list and is able to avoid hiring chronic floaters. Because of the small size of the community in which the plant is located and because

[22] To October 10th, 1917 only.

of the small number of men hired, it is possible to learn something of each applicant before hiring him.

The company has a very liberal profit-sharing plan which has been in operation since 1899. An inventory is taken each January 1st.[28] The amount by which assets exceed liabilities constitutes the net profits which are disposed of as follows:

1. Five percent is paid on the preferred stock.
2. Five percent is paid to the common stock.
3. Five dollars is paid into the stock purchasing fund for every share of stock on deposit with the company under the arrangement described below.
4. Ten percent of the remaining amount is paid into a sinking fund which can be used only to make up losses shown by the annual inventory and to bring dividends up to five percent when they have been less.
5. The remaining 90 percent is paid to preferred stockholders as extra dividends and to "honorary" employees as "remaining" wages. The amount received by each preferred stockholder and each worker is proportional to the amount paid him as regular dividends or as ordinary wages. It may not, however, exceed the amount paid as the regular 5 percent preferred stock dividend or the wages of workers. Excess over this amount goes to the stock purchasing fund. Ninety percent of extra dividends and "remaining" wages are paid in common stock, 10 percent in cash on the following December 1st.

An "honorary" employee—entitled to receive "remaining" wages, is one who has been continuously in the employ of the company for two years and who has agreed to deposit with the company all stock he may receive as "remain-

[28] In order to minimize the effect of changes in market prices materials are not inventoried at market prices but midway between moderate market prices and the prices put on the same article in the last inventory.

ing" wages. The owner agrees when he sells the stock to sell it to the company at the market price less all indorsements made on it, that is, less the $5 annual installments per share paid into the stock purchasing fund as mentioned in (3) above.[24]

The regular wages paid by the company in the shop in 1913 averaged 25.36 cents per hour, in the office 43.5 cents per hour.[25] The total amount of regular wages paid employees participating in the plan from its inception in 1899 to December 31, 1914 was $772,246.[26] The total dividends paid to employees during this period were $619,677 or 80.4 percent of the wages paid.[27] The lowest dividend paid was 28.5 percent of the earnings in 1904. Fourteen out of 16 times the dividend exceeded 60 percent of the earnings of participants, 10 times it exceeded 75 percent of their earnings.[28] On December 31, 1914, employees held 67.8 percent of the common stock, which was 54.1 percent of the entire capitalization.[29] The directors of the company are employees, about half from the office and half from the shop.

The effect of the plan in creating a permanent force is shown by the exceptionally large proportion of the force in service for a number of years. Of 154 men on the payroll during 1915, 120, or 77.9 percent, had been employed 2 years or more, 101, or 65.5 percent, 3 years or more, 81, or 52.6 percent, 5 years or more, 42, or 27.3 percent, 10

[24] A more detailed description of the plan is to be found in Emmet, "Profit Sharing in the United States," U. S. Bureau of Labor Statistics, *Bulletin* No. 208, pp. 37-44.

[25] Letter from the company.

[26] Emmet, "Profit Sharing in the United States," p. 22.

[27] Emmet, *Ibid.*, p. 22.

[28] Mr. Emmet's description of the plan gives the amount of dividends paid, the number of participants and the amount of earnings of participants for each year.

[29] Emmet, *Ibid.*, p. 44.

years or more, and 23, or 14.9 percent, 15 years or more. The average duration of service of the force at the end of 1915 was approximately 6.4 years.[30]

[30] This is an underestimate which was made in the following manner: It was known from figures furnished the writer by the company, how many of the participating employees in 1915 also participated in each of the preceding years since the inception of the plan. Thus of the 101 participating employees in 1915, 19 also had participated in 1899, 23 in 1901, etc. As two years' service was necessary to entitle an employee to participate in the profits, the 19 employed in December, 1915, who participated in 1899 must have been employed at least 18 years. This was assumed to be the duration of their employment, although many of them undoubtedly had been employed longer. Those first participating in 1900 who were still employed in December, 1915, must have been employed at least 17 years and this was assumed to be the duration for them, and so on for other years. The average duration of service of those who did not participate in 1915 because employed less than two years was assumed to be one year. If this is slightly greater than the actual average, it is more than compensated by the underestimate with respect to the other employees.

CHAPTER XIII

THE FUNDAMENTAL PREREQUISITES FOR THE REDUCTION OF THE TURNOVER: ATTRACTIVE WAGES, STEADY WORK, AGREEABLE WORK, AND SHORT HOURS

The four most important features of a job to the average factory workman are:

1. The wages.
2. Its steadiness.
3. Its physical and nervous demands upon him.
4. The hours.

As these four overshadow all other features of the job in importance to the workman, making the work attractive in these four respects must necessarily form the foundation of attempts to reduce the turnover. Without this foundation's being laid, the most careful selection of employees by a competent employment department, the most thorough instruction by a capable training department, generous treatment by a considerate management, and elaborate welfare institutions will come to naught. *Men will not remain at work because of incidental attractions when matters of fundamental importance are unsatisfactory.*

Rendering the work attractive in these four respects reduces the turnover not only because it reduces the number of resignations on account of dissatisfaction but also because:

1. A more ambitious and intelligent grade of labor is attracted, a class which is looking for good conditions and appreciates them.

2. When the job is attractive, men *consciously* make a

greater effort to acquire proficiency at it and are more careful to avoid being discharged, because they value the job more highly.

3. When disagreeable features of work are removed or minimized, men *unconsciously* do more and better work and are consequently less likely to be dissatisfied with their earnings. It is an elementary psychological fact that disagreeable stimuli decrease working capacity and that pleasant stimuli enhance working capacity.

In order to render the work as attractive as possible with respect to wages, steadiness, physical and nervous strain, and hours, four steps should be taken:

1. An individual and detailed investigation should be made of every job in the plant in order to learn precisely what unattractive features exist either in the operation itself or in the working conditions. The unattractive features found should be eliminated or mitigated in so far as profitable.

2. An investigation should be made of the length of working day in which the greatest amount of work at each job can be produced over a long period of time. On the basis of the results arrived at for the different jobs and on the basis of the working day in other establishments in the community and of the advantage to be gained or lost by setting the working day below or above the prevailing length in the community, the most advantageous length of working day for the entire plant or for the separate departments should be determined.

3. A systematic program should be adopted for regularizing employment and for meeting unavoidable fluctuations of employment.

4. A careful investigation should be made of the proper wage for each job. This should take into account the agreeableness and disagreeableness of the job, the skill and responsibility involved, the wages paid for similar work in

the community, the advantages to be gained or lost by the setting of a rate higher or lower than the rate prevailing in the community.

1. Elimination or mitigation of unattractive features in the process of work or in working conditions.

This includes the removal or mitigation of fumes, steam, dust, smoke, nauseating odors, the provision of fresh air, regulation of temperature and humidity, provision of proper light, relief from physical and nervous strain.

Because the desirability of mitigating unattractive features in the processes of work and in working conditions is obvious, few precise data exist in regard to the benefits of improved working conditions. Precise data are desirable, however, in order to show concretely and definitely the benefits of expenditures for these purposes.[1]

[1] Concerning the relation of temperature to efficiency, Professor Ellsworth Huntington has published most interesting data in his book, *Climate and Civilization,* New Haven, Yale University Press, 1915. Professor Huntington's figures are based on the average hourly earnings of some four hundred piece workers in two Connecticut factories which used a bonus system, of 65 girls pasting labels in a North Carolina tobacco factory, of 240 operators in two South Carolina cotton factories making coarse goods where the temperature and humidity did not affect the mechanical part of the work to any great extent, of 400 cigar makers at Jacksonville, Florida, and 2,300 cigar makers at Tampa, Florida (all on piece work). In the case of the Jacksonville and Tampa cigar workers, it was impossible to calculate the precise hourly earnings because the working hours were not regular. It was, therefore, necessary to make an estimate of the hourly rate based on the estimated working hours.

In every case the earnings show a sharp decline from the spring level as hot weather comes on and a rise in the fall as cool weather returns. The summer depression is more pronounced and of longer duration as one goes south. Measuring the summer depression by the difference between the maximum for the year and the minimum for the summer, the summer depression varies from nearly 5 percent in Connecticut to nearly 7 percent in the

The principal means of reducing the physical and nervous strain of work are:

1. Motion study. The elimination of waste motion and the reduction of the operation to the fewest, simplest, easi-

case of the Jacksonville carpenters and 10 percent in the case of the Tampa cigar makers. Among the 65 girls at the Winston-Salem, North Carolina, tobacco factory the difference was 6 percent, in a cotton factory at Columbia, S. C., 5 percent, in a cotton factory near Augusta, Georgia, 5 percent (pp. 66, 67, and 70).

The effect of extreme heat is indicated also by the following figures published by Professor Huntington, which show the effect of selected hot periods on output in the Connecticut factories for several years. The maximum heat and deficiency in work are represented by 100 and in the other years by proportional values (p. 90):

	1910	1911	1912	1913
Deficiency in work	58	100	8	2
Severity in heat	52	100	50	34

It will be seen that the deficiency in work increases much more rapidly than the severity of the heat after the heat reaches a given point. Analysis by Professor Huntington of the productivity of 300 men in two Connecticut factories from 1910 to 1913 and of 196 girls in one Connecticut factory from 1911 to 1913 according to the mean temperature of the day, all days with a given temperature being averaged together, shows that after the temperature passes an optimum of about 59 to 65 degrees, the productivity falls off rapidly (pp. 98, 99).

It goes without saying that the conditions which impair the worker's productive efficiency tend to produce dissatisfaction with the job and increase the turnover. The writer is indebted to the Yale University Press for permission to summarize Professor Huntington's data.

Professor C. R. Henderson (*Citizens in Industry*, p. 101) cites interesting evidence of the good results of improved ventilation. The Germania Insurance Company of New York, in 1910, had 80 clerks in one office. Previous to the proper ventilation thereof 10 percent were absent on account of illness. Proper ventilation reduced absences due to this cause to practically nothing. The United States Pension Bureau, by going into well ventilated and well lighted rooms, reduced the days of illness among the force

est motions possible, and the instruction of the operative in this way of doing the work.

2. Adjustment of the rate of doing the work to the rate at which the greatest output can be produced. There is a best rate for doing work, a rate at which the most can be accomplished (by most men) over a stretch of time and to exceed which means a loss in output. The best known example of the adjustment of the rate of doing the work is the determination by Mr. Taylor of the best shovel load for various shoveling operations.[2] Miss Tarbell cites a case from an installation of "scientific management" in a textile mill where it was found that the workers could do more and better work with 600 spindles and 6 sides than with 800 spindles and 8 sides and with the rate of revolution reduced from 8,800 to 7,600.[3]

3. Adjustment of the working day to the most favorable length. This will be discussed below in section 2 in connection with the adjustment of the hours of work.

4. Rest periods. The time required for recuperation from fatigue increases more rapidly than the increase in fatigue. Recuperation should take place, therefore, at frequent intervals before great fatigue has accumulated. Taylor's example of pig iron loaders is the classic example

from 18,736 to 10,114 days a year, in spite of the fact that the force was greatly increased. In the printing establishment of Mr. T. J. O'Brien, a new ventilation system was installed by the insistence of the New Jersey State Department of Labor. Formerly men left work on busy days in an exhausted condition and sickness was common. Since the installation of the ventilation system the men leave work on all days in an entirely different condition and sickness has been very much reduced. The errors in type setting and in time required for making corrections have been greatly reduced.

[2] F. W. Taylor, *Principles of Scientific Management*, pp. 64-77.

[3] *American Magazine*, February, 1915, p. 28.

of this method of reducing fatigue.[4] Rest periods are now extensively used with excellent results.

5. Improved and additional tools, machinery, and equipment to give the worker more and better mechanical aid. Careful study of operations will reveal many opportunities for improvements of this sort.[5]

6. Helpers.

It may be impossible to eliminate entirely the disagreeable and severe features of the work. In such cases it is often possible to mitigate their effects in various ways. For example, if the men must unavoidably work in heat, steam, wet, or dirt, showers and lockers for a change of clothes can be provided. It may be desirable to allow

[4] F. W. Taylor, *Op. Cit.*, pp. 57-64.

[5] An interesting example of relief of fatigue and a great increase in output by several successive mechanical improvements is given by Mr. Harold E. Barr in the *Iron Age*, v. XCV, p. 298. It is a typical illustration of the great possibilities of fatigue mitigation by the development of mechanical aids. The example is from the Studebaker plant. The operation was cutting down the size of cams, "necking them in." There were 13 cams on the cam shaft which were done at a time with two sets of tools, one a set of 7, the other of 6. The tools were fed into the work by a screw and hand wheel. It was found that the rate of production for the last three hours of the day fell off perceptibly. Investigation indicated that the workman became unnecessarily tired from shifting the hand wheel from one set of tools to the other. The hand wheel was shifted for every cam shaft turned from one feed shaft to the other. The workman's hands became slippery with oil and considerable strength was required to grip the wheel tight enough to feed the tools in as fast as desired.

The handwheel was changed from iron to aluminum, reducing its weight 2 lbs. The output increased from 80 or 83 pieces a day to 96 pieces per day. Handles were then inserted on the wheel to give a better grip. Output increased to 110 to 113 pieces. A pneumatic chuck then replaced the dog which had had to be changed from one shaft to another, saving time in putting in the work. Production increased from 113 to 196 pieces per day.

men exposed to heat, wet, or dirt to quit a short time before the others in order that they may be ready to leave the plant with the others. Workers engaged on jobs involving great physical exertion may be relieved by being shifted at regular intervals to easier work. This has been practiced in the automobile industry with the men who put the tires on the rims. Fatigue may be mitigated also by more careful hiring of men, hiring only those of exceptional strength or otherwise particularly adapted for doing the work with the least fatigue. Monotonous work may be mitigated by hiring unintelligent immigrants.

2. Adjustment of the length of the working day.

In considering the adjustment of the length of the working day a clear distinction should be made between:

1. The physiological limit upon working capacity, the amount of work that a man could do continuously without injury to health *were he willing.*

2. The psychological limit upon his output, his *willingness* to exert himself.

In determining what is the most desirable length of working day the management of course desires information on the first point. The physiological limit is the extreme limit which should be demanded of workers. Some day we may perhaps have information concerning the rate of work and length of working day in which the greatest amount of work of a given severity and of a given character can be done by men of different strength without impairment to health and such data will be of great aid in adjusting the hours of work.[6] At present we have no accurate information upon the limits set by health to speed of work and

[6] "Scientific management" began by calling on engineering to solve its problems. Now it is beginning to make extensive demands upon psychology. The next science which it is likely to call on is physiology, for which there is an extensive field of investigation in connection with managerial problems.

length of working day and must simply guess at a reasonable limit. The numerous cases in which a greater output has resulted from a reduction of the working day by no means prove that the longer day was a less efficient length of day from the *physiological standpoint*. It is a well known psychological fact that men who are happy and satisfied are *willing* to exert themselves more and that their cheerful and contented state of mind causes them also *unconsciously* to exert themselves more and to show more enthusiasm in whatever they are doing. To a great degree, therefore, the increased output in the shorter day may be due to the psychological rather than the physiological effect of the shorter day, to the greater enthusiasm and expenditure of energy which is typical of a contented man. In a similar state of mind under the longer day the worker might work at the same rate throughout the longer day without injury to his health.[7]

[7] It is undoubtedly true that the exertion made by a substantial majority of workers of all grades is decidedly less than it would be possible for them to make for a similar period of time without impairment of their health. The cases of no decline in production or of increased production following a reduction of hours instead of proving what they are often used to prove, that men had been over-worked, create a strong indication that the men had not been exerting themselves to the full extent that was possible without injury to themselves. In order to prove that the longer day exceeded the physiological optimum evidence of the effect of the shorter hours upon the workers' health, such as time lost on account of sickness, should be cited. Such statistics to be of value must cover the entire year, as the sickness rate is much greater in winter than in summer, or must err on the side of conservatism by showing a lower rate in winter than previously had prevailed in summer. There is great variation in the sickness rate from year to year caused by the character of the weather. This factor and also the presence of epidemics in either year and changes in working conditions must be allowed for. If possible the comparison should be made between several years before and

In deciding upon the length of day the psychological rather than the physiological factor is likely to be determining. The management must decide whether the satisfac-

after the reduction in hours, as comparisons of sickness statistics between two single years are very unsatisfactory.

The investigations of the British Health of Munition Workers Committee, while showing clearly that there is an optimum working day which cannot profitably be exceeded, also indicates that this optimum is higher than has been contended by advocates of the eight hour day. The evidence of the committee tends to show that 60 hours per week is nearer the physiological optimum than 48. The following data are taken from the reprints of the Report of the British Committee by the U. S. Bureau of Labor Statistics in *Bulletin* No. 221 ("Hours, Fatigue and Health in British Munition Factories"). Page references are to the *Bulletin.* The British figures, however, being for short periods only, do not show the long run effects of different lengths of working days.

Women engaged in moderately heavy work (100 engaged in turning fuse bodies).

The evidence is insufficient to establish anything beyond the fact that more than 55 or 60 hours per week decreased output. The shortest single week when conditions were typical was that of March 12, and the output per hour in this week exceeded that of any other. Whether still shorter hours would lead to a further increase there is no evidence to indicate. (*Bulletin* No. 221, p. 33.)

The decidedly greater amount of absence among the women engaged in heavy lathe work compared with those engaged in lighter occupations, indicates strongly that the heavy work was overtaxing (pp. 34-35).

Twenty-one women engaged in light labor, milling screw thread on fuse bodies.

The maximum hourly output was attained when working 59.8 hours per week. The maximum daily output occurred when the weekly hours averaged 63.7. Two weeks of 39.4 hours each at Easter showed less hourly output than two 59 hour weeks. This possibly was due to less application caused by the approach of the holiday. Otherwise data on shorter working weeks is lacking (p. 37).

Twenty-seven men engaged in heavy labor "sizing" fuse bodies.

The greatest hourly and total production occurred in weeks

tion and contentment which the men would derive from a working day shorter than the day prevailing in the com-

averaging 56.4 and 56.2 hours. In a period of six weeks averaging 51.1 hours per week hourly production was less (pp. 38-39).

Nine boys engaged in heavy work sizing base plugs.

The maximum hourly production occurred in 3 weeks averaging 60.9 hours, exceeding substantially the hourly rate of output in 11 weeks averaging 57.0 hours per week (p. 39).

Men engaged in moderately heavy work.

Twenty-three men boring the powder chamber produced substantially the same per hour in 60 hour weeks as in 48 hour weeks (p. 40). Twenty-two men finishing, turning and forming 3-inch shells produced less per hour, but more per day, when working 60 hours per week. The greater hourly productivity in the shorter weeks in this case is said to be due in part to the greater experience and greater proficiency of the workers. But, even disregarding this, more was produced per week of 60 hours than of 52 hours (p. 41).

Men and youths engaged in light labor.

Eighteen men engaged in rough turning shells produced practically the same hourly output whether working 49, 53 or 64 hours per week. When 20 operatives on a night shift had their hours increased from 47½ to 53½ for one week and then to 67 hours for two weeks their output was 99, 97, and 96 per hour in the 3 weeks respectively, that of the preceding 3 weeks being taken as 100. "There is little doubt, therefore," the report concludes, "that these operatives could have worked longer weekly hours than 64 or 67 without greatly diminishing their hourly output, and so have attained a greater total output" (p. 42).

Seventeen youths, 15 to 18 years of age, engaged in boring out the top caps of fuses by means of semi-automatic machines, produced within 2 percent as much per hour during 6 weeks averaging 70.9 hours each as during 8 weeks averaging 59.4 hours each. The hourly output during the 8 weeks averaging 59.4 hours was only 8 percent greater than the hourly output during 5 weeks in which the hours averaged 75.6 percent. The weekly output during the 5 long weeks exceeded the weekly output of the 8 weeks averaging 59.4 hours by 17.8 percent (p. 42). The slight diminution in hourly output, in spite of the long continued long hours, indicates that the physiological optimum for this sort of work is extremely high.

munity would lead them to produce at a sufficiently more rapid rate so that this gain combined with the gains due to the ability to secure a better grade of workers and due to the greater permanency of force will render a shorter day profitable. No tests by which the results of a reduction can be predicted exist. There is only abundant experience to show that whether the cause be physiological or psychological, a reduction in the working day has often proved profitable.[8]

[8] Miss Goldmark in her work *Fatigue and Efficiency,* pp. 134-155, describes in some detail some of the classic instances of increased production under reduced hours, such as those of the Engis Chemical Works in Belgium, Zeiss Works in Jena, Mather and Platt in England.

In the *Survey,* v. XXXVI, p. 7 (April 1, 1916), Miss Ruth Pickering gives the views of a number of manufacturers who adopted the eight hour day during the eight hour movement in the latter part of 1915 and the early months of 1916. To what degree the views of these manufacturers are based on an accurate statistical comparison of output before and after the reduction and to what degree simply upon impressions is not indicated. The views are extremely interesting. The Sperry Gyroscope Company, of Brooklyn, is quoted as follows (p. 7): "Less discontent and greater relative efficiency, with practically the same production in forty-eight hours as formerly." Another Brooklyn company wrote that the change "has resulted in increasing both the quality and quantity of the work of the men per hour." The Universal Machine Company of Baltimore said that it believed the reduction in the end will mean "finer work, increased output per hour, on account of the men being happy and contented." Another company writes: "While the time that has elapsed has been quite short, we feel increased effort has resulted, partly due to appreciation on the part of the employees of the fact that they now received 54 hours' pay for 48 hours' work, and partly through the fact that the higher rate of wages has improved the quality of the workers; that is, numerous high grade mechanics who have been earning less money elsewhere have come to us. . . . Immediately after the change went into effect there was naturally a considerable decrease in output, but this has partly been made up since that time through the increased

The problem of adjusting hours of labor includes the problem of reducing overtime. Many employers say that

effort mentioned above." Another firm: "The men seem very well contented and we seem to be getting work out just as rapidly as with the ten-hour day." Still another writes: "We believe it possible to get a better class of mechanics and at the same time improve the efficiency of the workmen." The Vitaphone Company, Plainfield, N. J., wrote: "Our results were at first decreased output and a slight increase in efficiency, but we feel that it will be only a question of time before we get both increased efficiency as well as increased output." Concerning the Remington Arms and Ammunition Company, of Bridgeport, Miss Pickering writes: "As output previous to the adoption of the eight hour day was very small, the exact difference is difficult to determine, but experience has since led the company to believe that the output has been increased by the change. . . . They believe that the eight hour day provides increased efficiency in the quality of the work performed and adds to rather than diminishes the quantity of the out-turn."

The effects of a reduction in hours in the drop forge shop of the Cleveland Hardware Company are described in the *Iron Age*, v. XCV, pp. 537-538 (March 4, 1915). The practice up to January 1, 1913, was for the two shifts to work 60 hours each, the day shift 10 hours 6 days, the night shift 12 hours 5 days. The day men were allowed to work overtime. After January 1, 1913, no overtime work was permitted on day work. Practically the same men and equipment turned out the largest output in the history of the shop. The result was so satisfactory that a change to an 8 hour day was decided on in 1914. The men were said at the time of the article to be doing as much in 8 hours as they formerly had done in 10.

One of the most interesting of all cases of hour reduction, not only because of the large size of the reduction but especially because the work involved was intermittent so that the workers had opportunity for considerable rest and therefore might be expected to be uninfluenced by the shorter day, is the reduction from 12 to 8 in the hours of the open hearth furnace workers and boiler room force of the Commonwealth Steel Company. The results were described by President R. A. Bull before the American Foundrymen's Association (see *Foundry*, v. XL, pp. 461-462; *Engineering Magazine*, v. XLIX, p. 60). The men had not asked for the change

their men desire overtime because they desire the opportunity to make the extra money. A clear distinction must

or for an increase in wages and no neighboring plant contemplated a change. No inducement was offered for more efficient service except that in anticipation of decreased earnings wages were increased from 14 to 22 percent. The men did not know that comparative records would be kept. There was a meter on each furnace to record the fuel consumption, a magnetic recorder to indicate the frequency with which furnace burners were reversed, a system for weighing the extra pig iron used in heat, a recording pressure gauge to show the steam pressure in the boiler room, and finally chemical analysis and physical tests to determine relative quality. The following comparison of the efficiency of the open hearth furnace workers for four weeks before and after the change indicates less wastage and more efficient and attentive work:

	12 hour day	8 hour day
Average amount of extra pig iron charged per heat, lbs	556	424
Average amount of oil consumed per heat, gallons	1,275	1,138
Average amount of fuel oil consumed per ton of metal charged	55	49
Average number of cracked castings per heat, percent	0.49	0.37
Average of longest intervals between reversals of burners during 12 hour periods, number	28	26.7

The record continued to improve, according to Mr. Bull, but other factors entered in.

The effect in the boiler room, as shown by comparing the four weeks before and after the change, was:

	12 hour day	8 hour day
Boiler pressure below 110 pounds	77	42
Boiler pressure below 105 pounds	9	3
Boiler pressure below 100 pounds	1	0

The boiler labor was done in materially less man-hours under the 8 hour day. Under the 12 hour day the day shift consisted

be made between the willingness to work overtime *occasionally* and the desire for *continuous* overtime work for several weeks or months. To isolated instances of overtime work probably most workers do not object, for the extra money is welcome and the inconvenience is slight. Overtime work if continued without interruption, however, quickly becomes onerous. The desire for continuous overtime usually means that the workers are underpaid. It does not mean that the interference with social life and leisure and the fatigue caused by the overtime are not felt and disliked by the workers but simply that financial pressure is sufficient to overcome these objections. In highly seasonal industries, where between the busy seasons of intense activity there are long slack periods, the workers are likely to welcome the overtime as a means of tiding them over the long periods when work is scarce.

The principal methods of reducing overtime are:

1. Planning and scheduling of work so as to avoid congestion in any department by work coming through irregularly.

2. Keeping in close touch with the progress of work by a control system in order to be warned of all failures of departments to maintain the schedule, and the despatch of immediate aid to departments falling behind. For this purpose an emergency squadron is provided, each member of which is trained to do a number of operations so that the squadron is able to help out any department. An eastern laundry visited by the writer has such a squadron. When

of 1 head fireman, 2 second firemen, 2 coal passers; the night shift of 1 head fireman, 1 second fireman and 1 coal passer—8 men working 12 hours each or 96 man-hours per day. Under the 8 hour plan the 7 A.M. to 3 P.M. shift consisted of 1 head fireman, 1 second fireman, 2 coal passers; the other two shifts of 1 head fireman, 1 second fireman and 1 coal passer, 10 men working 8 hours or 80 man-hours per day.

not needed for emergency work the members are employed in marking and mending articles, sewing on buttons, etc. They also fill the places of absentees. The members of the squadron wear insignia to distinguish them from other workers, which fosters an *esprit de corps.* A western mail order house also has an emergency crew. The maintenance of schedules is especially important in the mail order business because the different items of an order come from different departments and a delay in one item's reaching the packing floor delays the entire order and tends to congest the packing department. This business is an exceptionally good example of intermittent fluctuations in the volume of work, for the total number of orders received and still more the number received by the individual departments vary greatly from day to day. The emergency crew in this house has no regular work, but is used entirely on special work. The Eastman Kodak Company also has an "emergency squad" specially trained to do numerous operations, and reports the squad to be highly useful.[9] A large rubber manufacturing establishment has a "Production Squadron" which is available to strengthen any department needing assistance. The primary aim of the squadron, however, is to develop supervisors and skilled men. Fifty men are periodically picked from the best in the plant. They are guaranteed steady work and are trained to fit into any of the numerous departments. They are given courses in English, arithmetic, economics, mechanical drawing, organization and management, rubber manufacturing practice. On completing the course in three years they are given diplomas as Master Rubber Workers. Foremen and sub-foremen are selected from these men.

Training workers to do several jobs introduces flexibility

[9] An excellent description of the emergency squad and its work in the Eastman Kodak Company is given by Mr. H. E. Akerly of the company in *Factory,* v. XX, p. 45.

which assists in meeting fluctuations in the volume of business and in the size of the force caused by absentees and by hands' leaving. If a plan of training every worker to do a job ahead of him similar to the one advocated by Mr. Gilbreth[10] is used, resignations and absences should interfere little with the maintenance of production schedules.

3. Obtaining notice from workers who intend to resign in order to prevent departments from being short-handed and compelled to work overtime to maintain schedules. The problem of obtaining notice is discussed in the next chapter.

4. Reduction of absenteeism which is another cause of overtime. Employers will be surprised to learn how numerous absences are. In the Ford plant before the adoption of the profit-sharing plan the daily percentage of absence was 10.5. In 1914, the first year of the profit-sharing plant, it was 0.4.[11] Following up all absentees by

[10] *See* "The Three Position Plan of Promotion," *Annals of the American Academy of Political and Social Science,* v. LXV, May, 1916, on "Personnel and Employment Problems," p. 289.

[11] Emmet, "Profit Sharing in the United States," U. S. Bureau of Labor Statistics, *Bulletin,* No. 208, p. 117.

In an interesting article in the *Annals of the American Academy of Political and Social Science,* v. LXXI, pp. 140-155, Mr. J. S. Keir gives the experience of several firms with absences. The Dennison Manufacturing Company is stated to have an absence rate of 5.2 percent among women, 3.5 among men. In January, 1917, the Curtis Publishing Company is reported to have had an average of 42 daily absences per 1000 employees. This would be a low rate in a factory for the winter, when of course absences are more numerous, and under the condition of the labor market then prevailing, for workers are more lax in attendance, as in everything else, when jobs are easy to procure. A considerable part of the force of this company is clerical, which would tend to reduce the rate, but it is not stated how important this factor is. The Crompton-Knowles Loom Works is said to have an absence rate of 8½ percent. Mr. Keir's article contains a good

calling at the home of the worker is an aid in eliminating unnecessary absences. The Joseph and Feiss Company by this practice and by educating workers to appreciate the necessity of avoiding useless absences reduced the percentage of absences to 1.4 percent in 1915.[12] Some firms require all persons absent without notice to present a statement from a physician to the effect that they were ill or other satisfactory explanation before permitting them to return to work.

A common method of promoting regularity in attendance is the payment of bonuses, awarding of prizes, or granting vacations with pay to employees neither tardy nor inexcusably absent during a stipulated period. One of the greatest benefits of a medical department is the reduction in the time lost on account of illness. By nipping cases of indisposition in the bud, sending the worker home for the rest of the day, the medical department prevents the development of sickness which might cause several weeks of absence. The prompt and proper treatment of injuries prevents the development of infection which might cause absence.

An efficient employment department aids in reducing absences. The numerous low grade men engaged when hiring is done by foremen are lax in attendance especially on Monday morning. Foremen also fail to take into account the accessibility of the plant to the applicant's home. In inclement weather the worker who has a long distance to travel with possibly poor transportation facilities is much

discussion of the factors influencing the absence rate and methods which have been used to reduce it.

[12] Richard A. Feiss, "Personal Relationship as a Basis for Scientific Management," *Bulletin of the Society to Promote the Science of Management,* v. 1, No. 6, pp. 12, 13; *Annals of American Academy of Political and Social Science,* v. LXV, May 1916, on "Personnel and Employment Problems," pp. 47 and 51.

more likely to remain at home than the worker whose home is near by.

Reduction of alcoholism is an aid in reducing absenteeism. In some plants campaigns have been conducted on the order of the "Safety First" campaign to reduce excessive drinking. The men have been appealed to with substantial success on the basis of self-interest, that is, the injury to health caused by excessive use of intoxicants.[13] The maintenance of individual efficiency records, which, among other items include regularity of attendance and systematic promotion upon the basis of these records, encourages regularity.

Reports of absences to those in authority also encourage regularity, for workers are hesitant about remaining away when they know that every absence is brought to the notice of the foreman or division superintendent so that there is no chance that he will fail to learn of it and less chance that he will forget it.

5. For diminishing overtime work in the rush season in seasonal industries the three principal methods are developing staple lines which can be worked to stock instead of to special orders, inducing customers to place orders farther in advance of the season, and restricting the minimum time within which orders will be filled. These methods are discussed in the following section.

[13] Concerning the effect of alcoholism upon absences, interesting data collected by the Northern Iron Company of Plattsburg, New York, are reported in the *Iron Age*, April 18, 1918, p. 1000. The company selected 10 men who did not drink at all or who did not drink to excess, and 10 men who were known to drink to excess. The men were of like nationalities, of equal physical fitness, and engaged in the same or similar work. In June and July, 1917, the months selected for the experiment, there were 530 working days for each group. The moderate drinkers and abstainers, including overtime, worked 534 days; the excessive drinkers worked 364 days, a loss of 166 days, or 31.3 percent.

3. Regularizing employment.

Regularizing employment is important as an aid to reducing the turnover not merely because of the direct effect upon the turnover of the reduction in the number of lay-offs and in the resignations of piece workers who leave because of failure to obtain sufficient work, but also because a shop with the reputation of providing steady work attracts a superior class of workmen who desire steady work and who are willing to stay where they can obtain it. The fear of unemployment is one of the greatest fears the average workman has and he is slow to leave a shop in which he feels assured of steady work.

The problem of regularizing employment falls into three parts:

1. Holding the force during industrial depressions.
2. Reducing the irregularity caused by seasonal fluctuations in business.
3. Reducing the number of short time jobs.

1. Tiding over industrial depressions.

Industrial depressions more than anything else test the mettle of the selling organization for at precisely these times sales are most needed and customers are most reluctant to purchase. Establishments selling identified products sometimes make special advertising "drives" during these periods to induce reluctant consumers to purchase. Such a "drive" was made by Crofut and Knapp, distributors of Dunlap Hats during the depression of 1914. By a special advertising and selling effort sales were increased 25 percent over the previous year in spite of the depression prevailing.[14]

Working part time instead of laying men off in order to hold the force is a common practice in years of depression. During the depressed year of 1914 a Chicago metal manufacturer employing nearly 5,000 men laid off only 27 men,

[14] Robert A. Holmes, *Printers' Ink*, v. LXXXIX, No. 12, pp. 27-32.

although in order to give work to the remainder it was necessary to reduce hours from 54 per week to as low as 32. A number resigned and a number were discharged who were not replaced. The force decreased from 5,058 at the end of 1913 to 4,631 in August, 1914. During the depression of 1914 the Illinois Steel Company retained all married men and those having dependents and divided work among them, although the men did not work full time.[15] Mr. Richard A. Feiss states that the Clothcraft Shops avoided lay-offs during the 1914 depression by curtailing working hours. For six months working hours were 15 percent less than standard.[16] Mr. John B. Andrews reports a New Hampshire shoe factory which employed half its force each alternate week during the depression.[17] The practice of reducing hours rather than reducing the force was extensively practised during the 1914 depression.

2. Reducing the irregularity caused by seasonal fluctuations in business.

The principal methods of reducing the irregularity caused by seasonal fluctuations in the business are:

(a) Stimulating sales in off season. An automobile manufacturer, who increased the average number of weeks worked by the force from 46.8 in 1911 to 50.4 in 1915, pays a bonus to salesmen to stimulate sales in winter months. New markets for the product may be discovered. A case is cited by the *Iron Age*[18] of a manufacturer of equipment used in stone quarries who found the all steel derrick he

[15] Henderson, *Citizens in Industry*, pp. 41-42.

[16] Feiss, "Personal Relationship as a Basis for Scientific Management," *Bulletin of Society to Promote the Science of Management*, v. I, No. 6, p. 135; *Annals of the American Academy of Political and Social Science*, v. LXV, May 1916, on "Personnel and Employment Problems," p. 48.

[17] *American Labor Legislation Review*, v. V, p. 185.

[18] V. XCII, p. 131.

made for quarries could be used in sawmill yards. In this manner he secured a source of demand during his dull season. Paint manufacturers have regularized production by inducing people to paint in the fall instead of in the spring, the customary time, by "paint in the fall" advertising campaigns. Giving special discounts during the dull season is another plan. The anthracite coal mine owners have stimulated off-season purchases by selling at 50 cents a ton less in April than in November.[19] The summer prices of coal in general are less than the fall and winter prices. Special advertising campaigns to induce purchase of coal during the late summer months are very common in the coal trade.

(b) Inducing customers to place orders in advance of the rush season. The Dennison Manufacturing Company has used this policy with success, inducing jewelers to order boxes for Christmas use, for example, in the spring and avoiding great concentration of the work within a few months. Mr. J. H. Willits has described the plan of a shoe company which has induced customers to put in advanced estimates of their monthly requirements.[20] An important factor in inducing customers to give the estimates is that although the estimates do not limit the customer, customers who do not exceed their estimates are preferred in busy times to those who order in excess of them.

(c) Development of extra lines to fill in slack season—"dovetailing." A large machinery concern, according to the *Iron Age,* solicited orders for drop forgings during its dull season which it was able to turn out in its well equipped drop forging department. Enough trade was secured to keep the depart-

[19] John B. Andrews, *American Labor Legislation Review,* v. V, p. 185.

[20] "The Unemployed in Philadelphia." Published by the Department of Public Works, p. 99.

ments busy steadily.[21] A manufacturer of machinery used in plants busy in summer had a slack season in the summer since his equipment had to be installed during his customers' off season. He added a line of driers and pressers used chiefly by distillers, grain handlers and clay workers. The distilleries are busy primarily in winter, from November to May. The plan of "dovetailing" is said to have worked well.[22] The Dennison Manufacturing Company has added articles to its line to fill in gaps left by dull seasons.[23] A rubber shoe manufacturer, according to Mr. John B. Andrews, adds rubber sheeting, rubber heels, tennis shoes, rubber cloth, and rubber tires.[24] Automobile manufacturers push closed models in the dull winter season. Knote Brothers, New York, produce men's leather goods in the late autumn, belts in the early spring, suspenders in the late spring, other stock specialties during the year.[24] James Keiser, Inc., produce heavy neckwear and knit goods in the autumn, light cloths and knit goods in the spring.[25] Canning factories in cities add such lines as pickles, jams, baked beans, plum puddings. The United States Bureau of Labor Statistics cites a case of "dovetailing" in a Chicago factory in the women's ready-to-wear garment industry.[26] The factory makes dresses and waists and also petticoats, the seasons of which partially dovetail. Workers are transferred from one department to the other. Some indication of the possibility of regularizing employ-

[21] *Iron Age*, v. XCII, p. 131.

[22] *Iron Age*, v. XCII, p. 130.

[23] *Proceedings of the National Association of Corporation Schools*, 1916, p. 681.

[24] *American Labor Legislation Review*, v. V, p. 186.

[25] Exhibit at Industrial Betterment Exhibit, Ethical Culture Society, New York.

[26] "Regularity of Employment in the Women's Ready-to-Wear Garment Industries," U. S. Bureau of Labor Statistics, *Bulletin*, No. 183, p. 98.

ment by dovetailing is shown by the fact that in 31 weeks when the weekly payroll in one department was below the average weekly payroll of the department, it was above the average in the other department. The average variation of the weekly payroll from the average in the dress and waist department was 18.4 percent and in the petticoat department 28.9 percent, but the average variation of the combined weekly payrolls from the combined average was only 14.2 percent.[27] The Bureau does not indicate the effect upon stability of the dovetailing by stating the number of employees transferred and the number laid off.

(d) Working to stock in dull season. This requires the development of staple lines, the standardization of product which is so characteristic of American industry. The United States Bureau of Labor Statistics cites a Cleveland factory which before the arrival of the dull seasons conducts an advertising campaign for blue serge suits, a light weight for summer wear, heavy for winter. As soon as the busy season is over the force works on blue serge. The Bureau states that for 6 weeks in the fall and about 8 weeks in the summer the entire force is engaged in working on these special numbers.[28] The Dennison Manufacturing Company has standardized and now works to stock on some articles formerly made up on special order.

(e) Transfer of help from slack to busy departments. Some establishments train employees in several jobs in order that they may be available for transfer in case of necessity. A list is kept of the employees available for different operations. Inducing employees to learn another operation is often difficult for they are loath to be transferred, especially when they cannot earn as much in the new job as they have made at their regular one. The workers also feel that the acceptance of lower paying work

[27] Calculated from data given in Tables 48 to 99, *Bulletin*, No. 183.
[28] *Bulletin*, No. 183, p. 105.

may prejudice the management's willingness to pay them the higher rate of wages when they are engaged at their regular work. Also the workers do not have before them a definite prospect of regaining their original work at any specific time. They fear that they may be continued at the lower paying work indefinitely. They regard the transfer as a demotion instead of as a relief measure to save them from unemployment.

The Bureau of Labor Statistics reports that difficulty was experienced by the Chicago garment manufacturer referred to above, in inducing employees to leave the dress and waist departments for the petticoat department since rates in the latter necessarily were less than in the former.[29] The Clothcraft Shops pay a retainer to workers while learning and when working on operations at which they fail to earn as much as on their regular operations.[30] The H. H. Franklin Manufacturing Company, which aims to set individual wages in accordance with the value of individual workmen, pays a higher rate to men who can do two or more major operations.[31] Although considerable education may be necessary to convince workers of the desirability of the transfer system, the plan is used successfully by numerous plants. The Dennison Manufacturing Company, employing about 2,200 workers, made 64 transfers in 1915 because of no work in the original department.

(f) Limiting the time within which orders will be filled during rush season. The Bureau of Labor Statistics cites

[29] *Bulletin* No. 208, p. 98.

[30] Feiss: *Bulletin of Society to Promote the Science of Management,* v. I, No. 6, p. 12; *Annals of the American Academy of Political and Social Science,* v. LXV, May 1916, on "Personnel and Employment Problems," p. 48.

[31] George D. Babcock: "Fixing Individual Wage Rates on Facts," *Iron Age,* v. XCVII, pp. 1375-1379.

a Cleveland clothing factory which requires that delivery dates shall not be fixed without the consent of the superintendent in charge of manufacturing.[32] By this means promises of too quick delivery which would compel the taking on of temporary help for rush jobs are prevented and deliveries are so arranged as to provide for a steadier flow of work through the shops. A number of customers were lost but the Bureau reports that the firm apparently considered that the superior manufacturing efficiency which steadier work made possible more than compensated them for the lost orders.

(g) Making repairs, alterations and doing special work in slack season. Many special jobs cannot wait until the slack season to be done. A docket should be kept of all work which can be deferred until that time and arrangements made to have it done by regular employees in so far as they are competent to do it.

(h) Coöperation in the exchange of employees of several enterprises whose slack and busy seasons dovetail. This plan presents many problems. The rates of wages in the two establishments may be different and cause unwillingness to undergo transfer. The extra workers are often, though not always, wanted for the least skilled and poorest paying positions which pay less than the workers who are available for transfer regularly make. On the other hand extra work usually pays more than regular work of the same grade. As the workers who would be transferred are usually the least skilled and lowest paid, the wages which they receive as extra workers often exceed the wages which they regularly earn. Their higher earnings as extra workers are likely to make them dissatisfied with their regular wages. The type and grade of employee desired by one establishment may be different from

[32] "Regularity of Employment in the Women's Ready-to-Wear Garment Industries," *Bulletin* No. 208, p. 105.

the type employed by the other. The only instance of the transfer method coming to the writer's attention, between a store and a printing and book binding plant, was not particularly successful for the factory workers did not make good clerks. The plan, however, undoubtedly has possibilities.

An eastern street railway, in order to hold employees whom it is unable to employ during the summer months, grants them three months' leave of absence on their request. The worker then knows that he still has his job, and that when his three months' leave of absence is over he will not have to take his chance on being reëmployed but he will find his old position waiting for him.

3. Reducing the number of temporary jobs.

The principal means of eliminating temporary jobs are: (1) the planning and scheduling of work in order to send it through the plant in so far as possible in an even flow instead of in bunches; (2) an emergency squadron as described above, trained to do all jobs in the plant and able to fill temporary needs; (3) working overtime instead of hiring extra hands.

4. The adjustment of wages.

After each operation has been simplified as much as possible and after the severe and disagreeable conditions have been removed from it or mitigated as much as possible, the management is in a position to set a rate upon the job.

The rate set must take into account:

1. The skill required to do the work.
2. The responsibility involved.
3. The physical and nervous strain upon the worker and all disagreeable features of the job such as heat, dust, fumes, odors, monotony, etc.
4. The amount which must be paid not simply to obtain workers of the grade desired who are *willing* to do the

work but the amount which must be paid to arouse the worker's loyalty to the management and his genuine interest in his work.

The importance of this last point has been overlooked. Mr. R. H. Tawney has well said:[33] "Much is often said of the danger of 'discouraging enterprise' on the part of those directing industry. But it is not always sufficiently realized that the enterprise of the worker is equally essential."

The employer does not wish a workman who is simply *willing* to work at the wages he receives. He wishes a workman who enters into his work with some degree of pleasure and enthusiasm, who is pleased with his job and his employer, who takes a genuine interest in his work and has a feeling of real good will toward his employer. Such a workman is infinitely more valuable than a man who is barely satisfied with his job and pay, but who is willing to remain at it because he can do no better elsewhere. Men as a rule exert themselves no more than is necessary for an employer to whom they are indifferent and at a job for which they do not care. They take pleasure, however, in doing their best for an employer who has their good will.

The good will and loyalty of workmen cannot be obtained by paying them simply the bare amount they are willing to work for, the minimum which the market compels the employer to pay. The workers' good will is won only by giving something over and above the market rate. In setting wage rates, therefore, employers face the question, "How much is the good will of the workman worth, how much can I afford to pay in order to obtain a man who takes more than a perfunctory interest in his work, who takes pleasure in giving me the best that is in him?" Definite data on this point do not exist. There is evidence, however, in the increase in efficiency among the workers in

[33] *Minimum Rates in the Tailoring Industry*, p. 127.

the Ford plant following the Ford profit-sharing plan, and from the prosperity of many other firms which pursue a high wage policy that the amount which can profitably be paid to secure the loyalty and coöperation of workmen is great. Employers indicate that they set a high value upon loyalty by the liberality with which they treat those holding more responsible positions. Generous reward of executives is recognized as only good business. The ordinary workman, however, is as capable of loyalty and gratitude as the ordinary manager and there is no question that even relatively unskilled men possess important opportunities for making themselves more valuable and for saving money to the employer, if they are only interested in so doing.[34]

The value of a business is its value as a going concern. Among the components of this value are the good will of the customers and the good will of the employees. Every employee who gives the business his loyalty and good will is in a real sense an investor in the business for he makes a contribution to the assets of the enterprise. But he will not make this investment for nothing. Like the capitalist, he must have a reward. Liberal wages in essence are a payment to induce the employee to become an investor in the business.[35]

[34] A detailed investigation of just how much benefit would be derived from increasing the efficiency of "unskilled" and slightly skilled labor would be a revelation to employers and undoubtedly would radically change their attitude toward "unskilled" and slightly skilled labor. Such an investigation of the "leaks" due to the inefficiency of so-called "common" labor and slightly skilled labor is urgently needed.

[35] An interesting example of the discouraging effect of low wages upon workers and the effect of an increase in arousing them to better efforts is furnished by the application of the minimum wage rates in the English tailoring industry. The following description is taken from the excellent study of Mr. R. H. Tawney, *Minimum Rates in the Tailoring Industry.* To be noted especially is his

quotation of a girl who said: "When on bad work we go easy, for one can't make any money worth having, anyway. It's when we get good work at a fair price that we wire in." This is the most typical of the ordinary man's reaction to excessive difficulties and inadequate reward. Instead of trying harder when difficulties are great he slows down. Mr. Tawney writes:

"The suggestion that an advance in piece-rates would react favorably upon the efficiency of the workers was one which a considerable number of employers were disposed at first to dismiss. A view which frequently occurs in the 'objections' submitted by them was that the workers did not want to earn more than a low weekly wage, and that the effect of raising the piece-rates would merely be that they would produce less work. The arguments used in support of this opinion were various—that the workers were girls living at home, that they were married women and widows, that they were supported from other sources, and that for these reasons they did not need more than a comparatively low weekly wage. 'They are content,' stated one firm in its 'objection,' 'to go easy and earn from 10s. to 12s. per week.' 'Our girls are quite content,' said another, 'to earn 8s. to 10s. a week.' 'We have found,' said a third, 'that a very large percentage (at least 50 percent) of our female labor has not the slightest desire to earn more than 12s. a week'" (pp. 124, 125).

In contrast to these statements note the comments of manufacturers *after* the legal minimum wage had been put into effect:

"'There was a rise of about 25 percent in the finishers' piece-rates,' stated a large manufacturer, 'in order to bring them up to the minimum. But when the new rates were introduced the girls earned easily considerably more than the minimum.' 'Piece-rates have been raised,' said another, 'on every class of work, and the result of raising them has been to encourage the girls to do more work. Naturally so, for they work more cheerfully. They come to be paid with very different countenances from what they used to have.' 'The Trade Board,' said the manager of a large firm, 'has made 80 to 90 percent of the girls more thrifty. You cannot expect a girl who is paid 8s. to 10s. a week to do much work. Since the rates came into force the general thing is for the girls to do more work in the same time. Once they have earned the minimum, and felt what it is like to have more money to spend, they go ahead and don't fall back.' 'Output per head has increased,' said another. 'As a general rule the girls work better

if they are paid more.' Indeed, the psychological effect of relatively high and low wages on the workers would appear to be exactly the reverse of that often ascribed to them. So far from low rates 'making them work,' they often produce listlessness and despair. So far from high rates encouraging slackness, they stimulate the workers to earn as much as possible while at work upon them. If one can earn 13s. 6½d. fairly comfortably, one naturally tries to earn more, for then one can keep something worth having to spend on oneself. If one can only earn 10s. a week by working one's hardest, it is only natural to drop to 8s., for neither 8s. nor 10s. are worth working hard for. Though this elementary fact in the psychology of labor is constantly overlooked, the workers are perfectly conscious of it. 'When we're on bad work,' said one, 'we go easy, for one can't make any money worth having, anyway. It's when we get good work at a fair price that we wire in.' 'Before the Act came into force,' said another, 'we did not earn as we might have done. It was so little that we had to give up all of it at home, anyhow.' A girl who before the Act averaged about 8s. 5d. and after 15s. 5d., was asked how it was she made so much more. She explained that, since the Board's determination became operative, she was expected to earn not less than 13s. 6½d., and that, now her earnings were missed to that amount, she worked with a better heart, 'because it is so much more interesting to take home 16s. than only the minimum'" (pp. 132-134).

The benefit of a liberal wage policy is illustrated by the experience of firms with factories in both northern and southern England, the former a high wage, the latter a low wage territory. Mr. Tawney quotes as follows: "'I established a factory in the south of England,' stated a Yorkshire manufacturer to us, 'and therefore had an opportunity of discovering whether it was true that the industry was handicapped in the south by inefficient laborers. I found that the girls there were just as good workers as in the north, provided they were properly paid. . . . The manufacturers in the south are beaten because they pay low wages.' 'Higher wages,' stated another manufacturer in a similar position, 'certainly pay us. We let the girls fix the piece-prices for different kinds of work for themselves and hardly ever pay less than they ask. To be well paid gives the workers dignity and self-respect. They take more pride in and care of themselves. They *think* they are worth more, and therefore they *are* worth more'" (p. 132).

CHAPTER XIV

HIRING

The following discussion of employment practice refers only to the hiring of wage earners. Hiring for more responsible positions such as executives, salesmen, and technical experts such as accountants, engineers, etc., presents radically different problems.

Careful hiring is necessary in order to realize the full benefits of liberal wages, steady work, good working conditions and short hours. These conditions attract a superior, more ambitious type of workman. An efficient hiring system is necessary in order that the high grade men attracted by the desirable conditions may be selected from the others. Efficient employment work is, therefore, the first step in following up the advantages gained by making jobs attractive.

1. The work of the employment department.

The work of the employment department consists in:

1. The study of the labor requirements of the plant.
2. Getting in touch with desirable sources of labor supply.
3. Sizing up and selecting men.
4. Ascertaining the reasons why men leave and studying the causes of the turnover.

It is not unusual to give the employment manager other duties such as handling grievances, supervising welfare work, supervising the progress of new employees. All of these things the employment manager should be particularly fitted to do because they require keen insight into human

nature and exceptional ability to handle men. The employment man is supposed to be an expert in these matters. In handling grievances, he possesses the advantage that he is a neutral party, which often is not true of the foreman. The employment man also often commands the worker's confidence to a greater degree than the foreman, as the foreman has often lost the worker's confidence by tactless handling. These latter duties, however, do not belong to the employment man in his capacity as such and will not be discussed under the work of the employment department. It will also be pointed out below that it is desirable to concentrate the handling of the broader aspects of labor relations in an official of greater prestige, authority, and ability than even highly competent employment managers possess.

2. Why a central employment department is desirable. Hiring by a central employment department is preferable to hiring by foremen because:

1. Hiring is a specialized subject requiring special study. It is necessary to study the characteristics of each job in the plant, from this information to determine what qualifications a satisfactory workman for each job should have, to work out methods of getting in touch with desirable men, and finally to devise methods of sizing up applicants. Foremen lack the time necessary to make these studies, they are often insufficiently interested in the subject of hiring to undertake to make them, and often they are incompetent to make them.

2. Interviewing applicants requires more time than the foremen are able or willing to give. All promising applicants should be carefully interviewed whether a vacancy exists or not, in order to build up a waiting list of desirable applicants. An interview with a promising applicant takes from 5 to 20 minutes. The amount of interviewing which is necessary in order to build up a good file of desirable applicants is indicated by the experience of a western pub-

lic utility which in 1913 interviewed 20,339 applicants to fill 2,811 positions. The Brooklyn Rapid Transit Company in 1915 interviewed 14,993 applicants to fill 4,218 positions, in 1916 interviewed 17,263 to fill 5,775 positions, and in 1917 interviewed 34,169 applicants to fill 8,292 positions.[1] When a vacancy occurs five or six of the most promising applicants should be summoned for a second and final interview.

Foremen are usually willing to interview applicants only when a vacancy actually exists. They do not interview all who apply in order to build up files of desirable prospects. When a vacancy occurs foremen do not usually recall a number of applicants and select from them, but are inclined to take the first man whom a hasty interview indicates to be at all suitable.

3. Sizing up men is to a great degree a matter of intuition, of subconscious impression. Some men are good judges of character, others are not. There is no assurance that the foreman is a good judge of men. Selection should be left to a specialist known to be a good judge of men.

4. Interviewing just as salesmanship is an art requiring both natural ability and careful cultivation. The foreman may not naturally be a good interviewer and he has neither time nor often willingness to cultivate skill at interviewing.

5. Experience in sizing up men and interviewing is an important factor in securing good results. Foremen do not acquire the experience which a specialist does.

6. Some vacancies can best be filled by men already employed in other departments. The foremen do not know accurately who are the men in other departments specially qualified for positions in their own departments. Moreover, if the foreman of the other department objects to giving up a good man who would be more valuable if transferred, in the absence of a central employment office authorized to make transfers, there is no means to procure

[1] *Electric Railway Journal,* v. LI, p. 424.

the transfer except by the clumsy method of one foreman's appealing to the manager, which no foreman is willing to use.

7. Hiring by foremen results in lack of coördination. One department may be dropping help while another is hiring the same kind of help.

8. Foremen are unable to perform satisfactorily some of the incidental duties of the employment department such as ascertaining the causes why men leave, studying the causes of the turnover, persuading men who are leaving to remain, and arranging for the transfer of misfits. They lack the time properly to interview men who are leaving and often the tact and natural ability as interviewers to ascertain the real reason why the men are leaving. Often the foreman cannot learn the reason because it reflects upon the foreman himself or grows out of his relations with the worker. Foremen also often lack the persuasive ability to persuade men who are leaving for trivial reasons to reconsider their decisions.

Studies of the causes of the turnover cannot be advantageously made by each foreman with data from his own department. Such studies should be made by some one who has data from the entire plant.

9. Hiring by foremen in some cases builds up cliques based upon nationality, religion, fraternal organization, etc., within the department, either because the foreman gives preference to men of a certain nationality or religion or to members of a certain organization, or because he hires such men unintentionally by asking men already employed to bring in their friends.

3. Ascertaining the labor requirements of the plant.

Ascertaining the labor requirements of the plant consists in intensively studying each job in order to learn its characteristics, and, from the information thus obtained, working out conclusions concerning the qualifications required to

fill it. This study is known as "job analysis." The information obtained from the study of each job is entered on a card and the card is filed for reference. The employment department thus has at its disposal a file of cards showing the nature of the operation and the type of man considered best fitted for every job in the plant.

The information given by a complete job analysis covers the following points:

1. Nature of the job.

a. Precise nature of the operation.

b. Pay for beginners.

c. Period elapsing before advances are given and the amount of advances if a regular schedule for advances exists.

d. The amount an average good man can earn at the job.

e. Time required by an average good man to attain normal output.

f. Opportunities for promotion; names of the specific operations for which the operative is in line for promotion and their rates of pay.

g. Any particularly unattractive features about the job, such as great physical or nervous strain, heat, dirt, dust, steam, wetness, nauseating odors, monotony, etc.

2. Characteristics desired of the workman.

a. Occupations within the plant from which workers are to be drawn in preference to hiring outsiders.

b. Specific physical characteristics required of the worker such as great strength, good eye sight, dexterity, agility.

c. In the case of some jobs physical defects which in general disqualify applicants will not be a bar. Also certain physical defects which ordinarily would be a bar may not be a bar. These exceptions to general rules concerning physical defects are specified.

d. Special knowledge, skill, experience, or training necessary or desirable. Names of occupations experience at which especially qualifies men for the job.

e. Mental characteristics required of the worker, such as general degree of intelligence necessary, whether high, moderate or low, and special mental characteristics such as good memory, an eye for details, quick reaction, etc.

f. Requirements relating to applicant's personality and character, such as ability to meet the public; in the case of workers who work with helpers, tact and ability to get on with others; in the case of positions involving considerable responsibility even though perhaps not great intelligence or skill, a sense of responsibility.

g. Age limits if any.

An excellent description of the nature of job analysis was given by Mr. P. J. Reilly of the Dennison Manufacturing Company before the National Association of Corporation Schools in 1915. I quote Mr. Reilly's description of the requirements of three jobs:[2]

Requirements for fine stock making:

"For fine stock making we employ nearly 400 girls. We have found that a girl who would succeed quickly in this branch should have small, well-kept hands, not roughened by heavy house-work. She should be right-handed, since the left-handed girl increases unduly our training expenses. She should be from fifteen to twenty-five years of age, have good vision and she is preferred when she has had at least ninth grade schooling or better. We have a training school for the teaching of paper box making and find it costs us about $35 to put a girl through the course of instruction occupying fourteen weeks. Whenever we select persons who deviate from the above set of requirements, our cost is considerably increased."

[2] *Proceedings of the National Association of Corporation Schools*, 1915, pp. 757-763.

Order fillers in the finished stock department:

"This job requires a very active man. He must walk much and should be able to move about quickly. He must be free from foot troubles, rangy and active enough to get at stock quickly. He must be intelligent enough to read and understand orders quickly and accurately."

Gummed Label Cutting:

"The labels are printed on large sheets and put in a wooden box which is similar to a butcher's block. They are usually cut 25, 34 or 50 at a time, depending on the size and shape of the label. The job requires that a person stand all day. A girl to be contented at this job ought to be free from such defects as broken arches, rheumatism or a weak back. It was found on this job that a girl who was at least five feet, three inches in height worked with the least fatigue. If she was taller than that stooping over the block board would fatigue her. If she was much shorter she would have to hold her arms in an unnatural position. To do this work she requires a fair knowledge of arithmetic. She must know enough arithmetic to remember that when by cutting a thousand labels in 'lifts' of 34, she would get 102 labels every time three cuts were made, which would be the amount required to fill the box. Three lifts make a box of 100 labels. It seems incredible that any average employee would not have sufficient arithmetic to do a problem of that sort, but in our community a fairly large proportion of our help have had only sixth, seventh or eighth grade schooling, and they are unable after working for several years in factory occupations to do problems like this."

To simplify the making of job analyses, some firms use a standard form on which the possible requirements of the job are printed. The analysis is made by checking those qualities considered necessary, unnecessary, desirable or undesirable for the particular job. The following form is used by a middle western shoe manufacturer:

Requirements of position Symbol.....Position.....
Department.....Date.....Brief description of duties.....
.....
.....
.....
.....

Manual Clerical Executive	To what extent are the following qualifications necessary or desirable? (Check N, necessary, U, undesirable.)	
Man Woman Boy Girl	Education Experience Technical knowledge Strength Dexterity Judgment Imagination Fact Good eyesight	Accuracy Orderliness Patience Memory Quick reaction Concentrated attention Diffused attention Reliability Forcefulness
Tall Medium Short	Piece work earnings	Hour work earnings

Max.....Min.....
Line of promotion.....
Analyzed by.....
O.K. Superintendent.....

This outline is printed on a 4x6 card. The reverse of the card is used for special remarks.

An eastern manufacturer uses a shorter and radically different form:

Detail of Job. Job No.....Grade....Occupation.....
Duties.....
.....
.....
Time required to learn job..... Previous training or experience.....
Starting wage.....Next advance.....Wage limit.....
Age.....Height.....Weight.....Posture.....
Motion.....Hands.....Eyesight.....
Schooling desired.....Overtime lay-offs.....

The prevailing practice has been for foremen to requisition help under the general name of the occupation without further description, asking, for example, for lathe hands or milling machine operators. This practice often results in confusion and unnecessary trouble because there frequently is great difference in the various operations performed upon the same machine and great difference, therefore, in the character of the worker required.[3] When the job analysis is made, every operation is given a number. Requisitions are thereafter made by the operation number rather than by the name of the occupation.

The employment man soon comes to know the type of man he desires for the jobs most frequently in need of filling. For these jobs the recorded analysis becomes superfluous. Employment men who have made job analyses have told the writer they do not use them as much as they had expected. Nevertheless job analyses have three distinct advantages: (1) they are needed for reference in hiring for jobs infrequently vacated; (2) in case of change of employment men they are an invaluable aid to the new man in learning the ropes. In large employment offices where the employment manager is assisted by one or more interviewers one of the interviewers is usually promoted when the manager leaves. In such cases a new interviewer is necessary and the file of job analyses is an aid to breaking him in; (3) in working up the analyses much new information concerning the characteristics of jobs is brought to light and the employment man obtains many new ideas concerning the qualifications which operatives should have. *Job analysis is well worth while alone for the new information which it unearths.*

[3] From his knowledge of the work done in the department, from the foreman's statement of what the job pays, from his knowledge of the worker whose leaving caused the vacancy, and from conversation with the foreman, the employment man learns or guesses at the grade of workman desired.

4. Getting in touch with good men.

The first source of help to be considered is the working force itself. Suitable men already employed are preferable to outsiders because:

1. More accurate information is available concerning their qualifications. How much would the employment man not give to know as much concerning the skill, willingness to work, reliability, and loyalty of applicants for work as he already knows of the men on the force from his own acquaintance with them and with their work or as he can learn by reference to payroll records and from their foremen! By promoting men who have made good on simple operations to more difficult ones and by hiring outsiders for the simple jobs the risk of a misfit is largely eliminated in filling the difficult jobs, where misfits are costly, and transferred to the simple jobs where they are less costly.

2. By arousing the worker's gratitude promotion causes him to make a greater effort, which means that he is less likely to fail at the new job, that he reaches the standard output sooner, and that he is permanently a more efficient and contented workman.

3. An establishment promoting on the basis of merit attracts a superior grade of help because men seek work where they know there is an opportunity to advance.

4. Promotion tends to hold men, so that in filling vacancies by promotion the employment manager is preventing other vacancies from occurring.

It is the business of the employment department to know or learn the workers most deserving of promotion to each position in the plant. If individual efficiency records are kept, these furnish the main reliance of the employment department.[4]

[4] Efficiency records are discussed in Chapter XVI.

It is frequently possible to establish systematic lines of promotion so deserving workers are advanced through a definite sequence

To assist in filling vacancies by the promotion of desirable employees the help requisition blanks of some firms used by the foremen to inform the employment department of needed help contain the question: "Do you know of anyone especially suitable for the position?"

In every force there are certain men who have in mind definite jobs which they would like to obtain. Often the reason is that they have had previous experience at this work. It is desirable to grant these preferences in so far as possible without slighting more deserving men because men do better at jobs which they particularly desire and because if there is a job which a man desires especially but which he cannot obtain in the plant he is likely to seek it elsewhere.

To handle these cases of special fitness and special preference some employment men maintain a file of employees who have had previous experience at, or who have peculiar qualifications for, or have indicated special preference for other lines of work than those in which they are employed. The worker's previous experience and preferences are discovered in the original interview at the time of hiring, and his name filed under the names of alternative jobs for which he is considered desirable at once. The employment manager is thereby enabled simply by referring to the name of each operation in his file to learn the names of all men in the force who might be advantageously transferred to fill vacancies in the given occupation. A Buffalo metal working plant using such a plan constantly maintained a file of about

of positions. In many instances, however, definite lines of promotion are not practical because there are many operations which are substantially an equally good preparation for a large number of more exacting positions. In such cases the positions are divided into several grades and promotions made regardless of the specific operation from class to class.

50 men available for other jobs. The size of the force was about 700.[5]

In order to facilitate the filling of vacancies with men already employed, no foreman should be permitted to lay off a worker either temporarily or permanently without notifying the employment department. If the work of the factory is done under a schedule, the foreman will know precisely when each man will no longer be needed. It will, therefore, be possible for him to notify the employment department of impending lay-offs in advance, and a notification of at least 48 to 72 hours should be required to enable the employment department to arrange transfers.

Next to the men actually in the employ of the company the most desirable source of help is men previously in the employ of the company at the same or similar work. Comparatively little is now done in a systematic way to keep in touch and assure the return of desirable men whom it is necessary to lay off. A street railway company was mentioned in the preceding chapter which, finding it necessary to reduce its force during the summer months, grants men a leave of absence for three months. The fact that the men are sure that they can have their old jobs back at the end of a definite period is an inducement for them to return.

[5] The plan of allowing men to indicate preferences for promotion loses its usefulness when it is used by men who are simply seeking to be transferred to easy, well-paying jobs, instead of by men who are ambitious to advance and who are willing to go to some trouble and possibly some pecuniary sacrifice to do it. Its success presupposes that piece rates are fairly adjusted between jobs so that earnings are proportional to the difficulty, responsibility and attractiveness of the work. When rates are fairly adjusted between jobs so that the "plums" are eliminated, the system of encouraging men to indicate their preferences tends to bring to the attention of the management the most ambitious members of the force, for it is these men who seek promotion and who have definite aims as to what they wish to do.

Businesses with pronounced seasonal fluctuations usually endeavor to give the workers laid off to understand that they will be welcome when the busy season returns but usually no more definite arrangement exists concerning the taking back of the workers.

A third source of help are men recommended by employees. The advantages of this source of supply are:

1. It is possible to obtain more accurate information concerning the character and ability of these men than of applicants in general. There is considerable truth in the old adage: "Birds of a feather flock together." The applicant can be judged to a great extent by the worker who recommends him. If a man is intelligent, ambitious, sober and steady, he is likely to have friends of that character. He does not as a rule have lazy, dissipated, good-for-nothing friends. The types are not congenial and as a rule do not mix.

Employees are usually conservative in recommending their friends. They feel a responsibility in making recommendations. They know that their word has considerable weight in inducing the firm to hire men and with the natural pride which men have in their judgment they do not wish some one to be hired on their recommendation who fails to make good. Few employment men with whom the writer has talked find that employees irresponsibly recommend out of friendship persons who are not qualified. By far the greater number of employment men mention the desire which the men feel that their opinion shall be found correct.

In establishments where the men are well treated and where high standards of work exist, once a worker finds a place in the organization and feels himself a part of it, he takes a pride in it which prevents him from recommending persons who he feels cannot or will not uphold the standards of the organization.

2. When an old employee recommends a friend for a job he usually tells his friend of conditions in the plant and thus causes him to begin work with a favorable impression of the company. This is a substantial aid in breaking in the new man because one who starts in favorably disposed is more likely to see the good points of the place and to minimize its drawbacks than one who is indifferent.

3. A new man feels less of a stranger in a place in which he knows some one. The old employee is an aid also in making the new man acquainted in the plant. As the sense of strangeness which a new man feels oftens tends to make him dislike the shop and work and see the disadvantageous features of the job larger than they really are, a friend in the plant who assists in breaking down the new worker's feeling of strangeness aids in holding him.

4. The new employee has the advice and encouragement of the man who recommended him. If the new man is having trouble learning the job, or if there are features about the work or his treatment by the foreman which he dislikes he will probably tell them to his friend. The old employee who naturally wishes to see the man he recommended make good, reassures and encourages him and prevents him from exaggerating such matters in his imagination. Thus the old worker assists in tiding the new man over the breaking in period when men are most likely to quit.

5. It is gratifying to the old employee to have a friend hired on his recommendation and fosters his good will.

If the plant is a desirable one to work in and if it is understood that a good word from an employee is an aid in obtaining a job, recommendations from friends in the plant will be sought by applicants for work and it will be possible to supply a large part of the needs of the plant from applicants so recommended. The employment manager of an establishment making paper novelties where

working conditions are excellent estimates that half of the applicants who come to them are referred to them by old employees. The labor supervisor of an adding machine manufacturer mentions several departments in the organization where the custom of relying on recommendations of employees has grown up and where practically all vacancies are filled in this manner. A middle western manufacturer of agricultural implements writes: "The larger percent of our skilled or semi-skilled men are hired on recommendations of our foremen or other employees and we obtain our best men in this way." The book of recommended help of a Chicago metal working establishment in which are entered the names of applicants recommended by employees shows that from February 5, 1914, to December 11, 1916, 576 applicants were recommended by employees. During this period the establishment hired 7,617 workers. Of these, however, 4,837 were laborers, and as recommendations were almost entirely of men for skilled or semi-skilled positions or of boys, the number recommended should be compared with the number of skilled and semi-skilled men hired, which was 2,780. As nearly all the applicants recommended were hired, it is evident that recommendations were a substantial aid in obtaining help. These figures, however, far from indicate the total number of men hired upon the recommendation of old employees. They do not include men brought in by old employees and hired at once or men sent in by old employees and hired at once. The names entered in the book include only those recommended applicants for whom no position was *immediately* open at the time of recommendation, and whose names were, therefore, entered in the book for reference.

A question on the blanks used by foremen in requisitioning help asking them to name any especially desirable per-

son for the place will bring some recommendations of outsiders.

In order that employees may clearly understand that recommendations of deserving applicants who really wish work in the shop are desired, some establishments mention the fact in their rules and regulations. Sometimes a special notice is used to call attention to the policy. The following notice was used by a middle western shoe manufacturer:

To Our Employees:

It is always our aim to secure the best help obtainable and, if possible, to secure men who are particularly fitted for the position for which they are employed.

We realize that a great many of our present employees have acquaintances of good character who are skilled in our line of manufacture and we shall be pleased to receive your recommendation of such persons.

Suitable forms may be secured from your foreman for this purpose and when properly filled out should be given back to him or to the employment department direct.

The employment department will notify the person recommended when an opportunity occurs in a department in which we can use him.

We request your hearty coöperation in connection with the foregoing.

A common practice of employment men when they must fill a position of particularly exacting requirements is to ask several high grade employees that they know intimately to suggest desirable men for the job.

A possible danger of the recommendation system which is mentioned by almost every one is that it may lead to cliques. One firm states it found almost one entire department belonging to one patriotic order and as they began to

show a clannish spirit, it was necessary to separate them. In order to prevent the development of cliques many firms avoid placing the new and the old employee side by side and prefer to put the new man in another department.

Absolutely essential to the success of the recommendation system is it that the establishment have a reputation as a good place to work. High grade men will not seek recommendations to help them obtain work in establishments which are not regarded as desirable working places.

The fourth source of help is the transient applicants who visit the employment office in search of work. The best and only way to secure numerous and desirable applicants for employment is to pay good wages and to maintain good working conditions. The rule that word of mouth advertising is the best advertising applies in obtaining help as elsewhere. A plant with the reputation of being a good place to work not only secures the most desirable applicants but has numerous applicants when others have few. It is able, if it desires, to build up a waiting list of applicants who are already employed. An eastern printing and bindery establishment which has greatly improved conditions by the introduction of the Taylor system estimates that fifty percent of their applicants are attracted by the good conditions. A button factory which has desirable conditions states that a large majority of their applicants have friends in the plant, from whom they have undoubtedly heard it is a good place to work. The employment man of an establishment making tags, labels, and paper novelties, which has done much to improve working conditions, says that the work has very noticeably strengthened their position in the labor market, that applicants for work almost invariably come to them first, that many register their applications while working elsewhere, and that the company generally has a waiting list. The employment manager of a Chicago metal working establishment with a high repu-

tation for model conditions, tells the writer that he has plenty of men waiting outside his office for jobs when other firms in the vicinity are telephoning him to send them any applicants for whom he has no need.

Advertising is used by most firms only as a last resort. It is a sign of good working conditions not to be compelled to advertise for help. Firms with a reputation for good working conditions do not need to advertise except to fill particular positions peculiarly difficult to fill, to obtain large numbers of workers on short notice or in times of extraordinary labor scarcity such as have prevailed since early in 1916.

Schools and vocational guidance bureaus are important means of obtaining desirable boys and girls. By becoming acquainted with the teachers in neighboring schools and by convincing them that his establishment offers good opportunities for children and that children are well treated, the employment manager can induce them to send him the most promising students who are entering industry.

Vocational guidance bureaus, which are rapidly increasing in importance, are a great aid to employers who treat children with particular consideration because they know accurately how children are treated in various establishments and give preference in placing children to those establishments offering them the best opportunities and according them the best treatment. By placing the most promising boys and girls in the establishments giving children the best treatment, vocational guidance bureaus can exercise a strong beneficial influence upon the condition of children in industry.

5. Sizing up applicants—scientific tests.

Fitness of the applicant may be considered from two points of view: fitness for the organization and fitness for the specific job. The first is a question of the applicant's *attitude,* of his character and personality. Is he in-

dustrious, reliable, careful, cheerful, honest, persistent in the face of difficulties, is he of a personality likely to get on well with those in authority and his fellow workers? Fitness for the job, on the other hand, is a question of *aptitude,* of his physical and mental ability to do the work.[6]

The means for determining the fitness of applicants fall into two classes which may be called scientific and empirical. By scientific tests are meant tests which directly demonstrate the existence or non-existence of specific characteristics. Empirical tests are those which give only indirect evidence of the applicant's fitness.

Scientific tests of fitness fall into two classes: those relating to physical fitness and those relating to mental fitness.

The physical fitness of the applicant is tested by the medical examination which nearly all large establishments now require. The examination, as a rule, is somewhat less thorough than a life insurance examination and takes usually from ten to twenty minutes. The rejections, as pointed out in Chapter XI, usually run from one to ten percent of the number examined, depending upon the severity of the standards for acceptance.

The Navy Department in hiring laborers and artisans for navy yards several years ago required not only that the applicant be free from certain specific organic and functional defects but that he attain a grade of 85 based on a standard system of rating. On the basis of height and weight a tentative maximum rating was given which never exceeded 98 and subtractions were made from this for various defects. In order to attain a tentative rating of 98

[6] See Richard H. Feiss: "Personal Relationship as a Basis for Scientific Management," *Bulletin of Society to Promote the Science of Management,* v. I, No. 6, p. 8, and *Annals of the American Academy of Political and Social Science,* v. LXV, May, 1916, on "Personnel and Employment Problems," p. 36.

the applicant must weigh over 160 pounds and be 5 feet 6 inches in height. Giving applicants definite grades on their physical condition of course makes possible more accurate ascertainment of their relative fitness.

Mental tests are still in the experimental stage, but considerable work is being done along this line. There is a great need for a general intelligence test and for tests of various kinds of dexterity and of the qualities of attention. By far the most important tests which could possibly be developed from the standpoint of the employment man, not to mention society at large, are those relating to character. It would be invaluable to the employment man to be able to measure the applicant's industriousness, his carefulness, his sense of responsibility, his honesty,[7] but such tests seem beyond the range of possibility.

The fact that the tendency is for factory work to become more and more simplified and to be reduced more and more to automatic routine by the subdivision of labor and by the development of semi-automatic machinery does not, as one might suspect, render psychological tests unimportant because the work is made so simple that any one can do it. The greater specialization of work narrows more and more the particular qualities on which success at the work dedepends. Deficiency in one or more of these qualities is

[7] It is true, of course, that the traits of character which a person exhibits at a particular time are simply the result of the complex of reactions produced by the particular circumstances so that under some circumstances an industrious man may be lazy, a careful one careless, a courageous one cowardly, etc. Nevertheless, past experience apparently produces the habit of reacting in a certain way, builds up a predisposition to certain kinds of action. It would be invaluable to the employment man to be able to measure the relative strength of these predispositions in different individuals, although it might turn out that under the particular circumstances prevailing in the establishment the workman might act contrary to his well established habits.

less likely to be compensated by exceptional ability in some other quality when the number of traits upon which success depends is few. Numerous apparently simple jobs will be found in every establishment which demand the possession of rather specialized psychological qualities.[8]

[8] A good example of the value of psychological tests in connection with what appears on first sight to be an extremely simple operation is shown by the experience of Mr. S. E. Thompson with girls inspecting balls for ball bearings in a bicycle factory, described by Mr. Taylor (*Principles of Scientific Management*, pp. 87-97). One hundred and seventy girls were employed inspecting balls. They placed a row of balls on the back of the left hand and as the balls rolled down the crease between the fingers they examined them in a strong light and picked out the defective ones with a magnet. The work required quick power of perception and a quick reaction to the impression. Mr. Thompson had the reaction time of the girls tested and eliminated those with slow reaction. By this and other means, such as reducing the hours, thirty-five girls working eight hours a day did the work which 120 did in ten and one-half hours, with an increase in accuracy of two-thirds.

The increase in output and accuracy probably cannot be entirely attributed to superior methods of management. A large part of the increase was undoubtedly due to the fact that the girls were making a greater effort. The dropping of such a large proportion of the force would in itself be a tremendous stimulus to production, for naturally the girls would exert themselves in order not to be among those dropped.

Professor Münsterberg (*Psychology and Industrial Efficiency*, pp. 119-120) cites several examples of apparently simple jobs at which particular psychological qualities determined the worker's efficiency. One was a job in a pencil factory where the worker was required in a single movement to pick up exactly a dozen pencils, no more, no less. Some learned this without difficulty, others never learned it despite repeated efforts. Another was a job in an accounting department where girls looked over slips from which the weekly pay-list was compiled. The girls looked through groups of twenty slips to see if the figures on each agreed. After the slips were sorted the totals on each order number were obtained on the adding machine.

There was great variation in the proficiency of the workers at

6. Sizing up applicants—empirical tests.

a. The interview.

In the prevailing undeveloped state of scientific tests of fitness the main reliance of the employment man must be on empirical devices for sizing up men. The most important of these and by far the most important of all the means of sizing up men is the interview.

Inadequate attention has been paid to the subject of interviewing, and yet prominent employment men who have made enviable records in reducing the turnover, tell me that thoroughness and care in interviewing is the main reason for their success. *Carefulness and thoroughness in interviewing is the principal thing which distinguishes high grade employment practice from poor.*

The applicant should not be interviewed through a window or across a railing or a counter while standing in line with other applicants, but should be seated beside the interviewer's desk, in a private room if possible. Interviewing the applicants in line gives the impression that the interviewer takes no particular individual interest in them, that they are not being given careful and serious individual consideration. The physical barrier between the interviewer and the applicant also tends to create a psychological one. These facts hinder the interviewer from winning the man's confidence. The presence of others renders the applicant highly self-conscious and prevents him from talking freely and forgetting himself, which the interviewer wishes more than anything else for him to do. When the applicant is interviewed privately it is easier to cause him to

these operations. Good workers could turn the slips so rapidly that a bystander could not read a single figure and would not make a mistake in thousands of slips. Others had great difficulty in attaining speed and made numerous mistakes. Frequently workers who were poor sorters made excellent adding machine operators, and poor operators made excellent sorters.

forget himself. He feels that the interviewer is really interested in learning of his qualifications, that he has a sympathetic and interested listener, and that his case will be given careful individual attention. This aids in gaining his confidence and inducing him to speak freely and frankly. Interviewing men in line also results in the men's deriving their answers to the interviewer's questions from what was said by those preceding them.

The interview is based on the application blank which the applicant has already filled out. This gives the most essential facts concerning the applicant, his or her address, whether married or single, the number of dependents, in the case of unmarried applicants whether he or she is boarding or living at home, the amount of schooling, whether ever previously in the company's employ, the names of previous employers, work done, duration of service, wages received and reason for leaving, the kind of work desired and the wages expected.

On the basis of the information contained in the application blank eliminations can be made at once. The applicant may lack the minimum amount of training or experience considered essential for the position. If the applicant's address shows he does not live conveniently near the plant it is well nigh useless to hire him for he is almost sure to leave soon. If he has been doing higher grade work at higher wages than the work he is applying for pays, he will not make a permanent employee. It is a good rule that no man shall be hired for a job which represents a decrease in earnings to him and that in every possible case the job shall mean an increase in the earnings of the worker hired.[9] A workman who improves his condition by taking the new job is favorably disposed toward the job

[9] Note remarks below concerning the exceptional case of men who leave high paying seasonal industries in order to secure steadier, even though lower paying work.

and toward the employer who gives it to him. He is less critical and more ready to see good points in his surroundings. Moreover his self-confidence is strengthened and his ambition to advance still farther is quickened. Because he desires to continue to advance he is a more valuable employee, he brings enthusiasm, "pep," initiative, competition into the organization.

For low grade routine work requiring little or no initiative or judgment and offering little chance for advancement intelligence, ambition, and initiative may be a positive detriment. For these jobs the employment man may seek ignorant, unintelligent, stolid but industrious workers. A foreman in a middle western farm implement factory found that on a certain assembling operation of the simplest and most routine sort, which consisted simply in putting bolts in the bolt holes of certain parts of a machine which was shipped out knocked down and of screwing on nuts, that the only youths he could hold on the job for any length of time were young immigrants. To them the job was desirable because it paid seemingly good wages and the extreme monotony did not oppress them. The employment manager of an eastern piano manufacturer told the writer that he solved the problem of instability among the helpers on certain varnishing operations where the work was dirty and disagreeable by hiring newly arrived Russians. Many employment men attempt to get newly arrived immigrants of the unintelligent but hard working type for foundry and yard work.

A striking example of the actual preference for unambitious and unintelligent stolid labor is furnished by a job analysis of a Buffalo metal working plant for the operation of running a punch press, published in a recent number of the *Annals*. The analysis states: "It is very essential that the intelligence be not overactive or imaginative, and that the employee be such as would consider himself ac-

quiring nothing beyond his expected stipend and the knowledge of running that kind of a machine."[10] In other words the operative should be content to run a punch press all his life!

Mr. C. W. Price, field secretary of the National Safety Council, in an unpublished address, quotes from the *Outlook*[11] the following significant description of certain work in the packing industry:

"A month ago we stood with a superintendent in a room of the canning department. Down both sides of a long table stood twenty immigrant women, most of them visibly middle aged and mothers. 'Look at that Slovak woman,' said the superintendent. She stood bending slightly forward, her dull eyes staring straight down, her elbows jerking back and forth, her hands jumping in nervous haste to keep up with the gang. These hands made one simple precise motion each second, 3,600 an hour, and all exactly the same. 'She is one of the best workers we have,' the superintendent was saying. We moved closer and glanced at her face. Then we saw a strange contrast. The hands were swift, precise, intelligent. The face was stolid, vague, vacant. 'It took a long time to pound the idea into her head,' the superintendent continued, 'but when this grade of woman once absorbs an idea she holds it. She is too stupid to vary. She seems to have no other thought to distract her. She is sure as a machine. For much of our work this woman is the kind we want. Her mind is simply all on the table.'"

The rapid increase in the number of jobs for which

[10] R. J. Burke, "Written Specifications for Hiring," *Annals of the American Academy of Political and Social Science*, v. LXV, May 1916, "Personnel and Employment Problems," p. 180.

[11] Wm. Hard and Ernest Poole, "The Stockyards Strike," *Outlook*, v. LXXVII, p. 887.

lack of ambition, lack of imagination, ignorance and a sluggish mentality in general are positively *preferred* is one of the most serious problems of modern industry.[12]

Some firms will not employ married women living with their husbands, not only because they are irregular in attendance but also because the employers find or claim to find that in a large proportion of cases the women are not seeking permanent work but are working only temporarily during the convalescence of some member of the family to help pay doctor's bills or because the husband is unemployed or to help pay installments on furniture, etc. A large middle western shoe company follows this rule. If closer scrutiny of applicants for employment seriously limits the ability of married women to obtain work to assist in tiding over unemployment, sickness or accident, the need of social insurance will become more pressing.

A number of jobs held for short periods should not be conclusive evidence against the stability of the applicant since when a man loses a steady job it is often difficult for him to secure a satisfactory one.[13] The applicant however, should be able to show continuous employment in at least one establishment for a year or more within a period of a year preceding his application. The longer the con-

[12] There appear to be two distinct tendencies in the development of factory work which should not be confused. One is for it to require less intelligence, judgment, initiative, ambition and responsibility among the men in the ranks—the privates of industry. This does not mean, however, that the work requires no special qualifications and that any one can do it as well as any one else. On the contrary, as has been previously pointed out, time and motion study and psychological experimentation are revealing more and more that the so-called "unskilled" work which it has been assumed "any one" could do, requires special qualifications, and that careful selection and thorough training are necessary to obtain highly efficient workers.

[13] See Chapter VII, section 3.

tinuity of employment in previous jobs, the more favorable to the applicant.

Applicants who have been employed in seasonal industries should be given particular scrutiny, especially when they make application during the dull season of the seasonal industry. Seasonal industries usually pay higher wages than continuous ones. The chances are that these applicants are seeking work only to tide over the dull season in the seasonal trade and at the coming of the busy season will return to higher paying seasonal jobs. Workers who really appear to be leaving seasonal employment to secure steady work may be highly desirable applicants.

The reasons given for leaving previous jobs are particularly important as indications of the applicant's probable stability. Lack of a definite reason of course practically disqualifies the applicant. The reasons given should be compared with the facts stated concerning the previous position. If the reason given for leaving was dissatisfaction with wages and the wage the applicant claims to have received appears very fair, the chances are that he will be dissatisfied with the wages of the job he is seeking or that his statement of his previous earnings or of his reason for leaving is untrue.

Likewise if the reason for leaving was that the work was too hard and the work which he is seeking is hard or disagreeable, he is not likely to be satisfied.

The definite conditions which caused the applicant to leave his previous job usually do not appear on the application blank. Simply a general reason such as "dissatisfied," "work too hard," "wages too low," etc., is given. The interviewer wishes to know the precise conditions to which the worker objected, what rate of wages he considered too low, what conditions of work too hard, what length of working day too long, etc.

The interviewer is interested in why the worker seeks

work in the establishment, whether he has definite preferences in regard to the work he does, and what the reasons for the preferences are. If the applicant seems to be applying at the establishment because he believes it to be a good place to work and appears to be genuinely ambitious to better his condition rather than to be looking for a "soft snap," he is likely to make a desirable employee. The applicant's statement of the kind of work he prefers is often unreliable because he is likely to state the kind of work in which he believes the firm needs help. His answer, therefore, does not necessarily indicate a definite preference for the kind of work mentioned. For this reason some employment men prefer not to let applicants know in advance what jobs are open. An apparently genuine and definite preference for a particular kind of work not based on the desire to do something easy or clean or genteel is a strong recommendation of the applicant.

If the applicant is a minor living at home the interviewer wishes to know whether the applicant has to work. Children who do not have to work are likely to be irregular in attendance, less interested in their work and more likely to quit for trivial reasons. The interviewer wishes to know whether the applicant contributes all his or her earnings to the family and if so whether this contribution is necessary or not. Workers who turn over all their earnings to their parents are less apt to be interested in their work than those who are permitted to keep a share for themselves, particularly if the contribution is not really required by the family.[14]

Upon the ability of the interviewer to gain the confidence of the applicant and to induce him to talk frankly

[14] This point is well made by Mr. Richard A. Feiss of the Clothcraft Shops. He states that they give preference to applicants who support themselves or whose contribution is a necessity. When cases are discovered where the employee is required to contribute her entire earnings to the family in absence of necessity, the employ-

and freely depends to a great degree the value of the information obtained. Because the faculty of inspiring confidence and asking questions naturally and unobtrusively is a gift not possessed equally by all men is one reason why interviewing should be done by specialists rather than by foremen.

Fully as important as the specific information given by the applicant is the impression gained of his character. The estimation of the character of applicants, however, probably constitutes the least satisfactory phase of interviewing practice.

The specific qualities of character in which the interviewer is most interested include honesty, frankness, intelligence, earnestness, whether the applicant is a man of definite aim, whether he understands the meaning of responsibility, whether he is industrious, painstaking, willing to do what he is told, appreciative of good treatment, whether he responds to it with loyalty, whether he is willing to coöperate with others, whether he is of agreeable personality and likely to get on well with his associates.

There is no reliable direct evidence of these traits. External manner and appearances, features, facial expression, handshake, clothes, attitude toward filling out the application blank, attitude toward the questions asked him and character of his answers are all misleading. The man of neglected appearance, careless in dress, may be a most neat and careful workman, the man with the easy self-

ment and service department endeavors to arrange that all earnings above a stipulated amount be left to the worker to be deposited in the employees' Penny Bank. This arrangement results in an increase in efficiency, he says, from 20 percent upward. "Personal Relationship as a Basis of Scientific Management," *Bulletin of the Society to Promote the Science of Management,* v. I, No. 6, pp. 7, 8; *Annals of the American Academy of Political and Social Science,* v. LXV, pp. 34, 35. Talks by the writer with a number of employment men confirm Mr. Feiss's observations.

confident air, a quitter, the timid shrinking man may possess indomitable persistence, the man with the cordial handshake and sociable personality may lack coöperative spirit when it comes to submerging himself in the organization and making the common purpose his own. Courteous willingness to fill out the application blank and to answer questions does not necessarily mean that the applicant will be obedient and willing when on the job. The interviewer seeks to penetrate beneath these externals and to see what is really there. He arrives at his conclusion, however, not as a result of a process of conscious and systematic analysis of the applicant, but in the same way that men in general do, as a result of intuition. Intuitively he feels either that the applicant is a desirable or undesirable sort. Upon the soundness of his intuition depends his reliability as a judge of men.

On account of the unreliability of impressions based on the applicant's superficial manner and appearance, some employment men insist on a second interview before hiring. The external manner and appearance, being more familiar, are less distracting the second time and the interviewer is better able to see beneath the surface. This practice is followed in an eastern printing and binding establishment visited by the writer, and Mr. Feiss states it is followed at the Clothcraft Shops.[15]

The purpose of the interview is not only to obtain information but also to give it, and, paradoxically, giving information is one of the best ways of obtaining it. Before hiring an applicant the interviewer explains to him carefully the nature and conditions of the job, precisely what

[15] Richard A. Feiss: "Personal Relationship as a Basis for Scientific Management," *Bulletin of Society to Promote the Science of Management*, v. I, No. 6, p. 8; *Annals of the American Academy of Political and Social Science*, v. LXV, May 1916, on "Personnel and Employment Problems," p. 35.

the work is, how much a good man can earn at it (slightly *understating* this as it is desirable that the worker be agreeably surprised by making more than he expects), the time required for an average good man to attain the normal output (slightly *overstating* the period), the opportunities for promotion and what they pay. If there are difficult or disagreeable features connected with the job, these are plainly told the worker and, in fact, *over-emphasized.* Nothing is gained by hiring a man for a hard disagreeable job who is unwilling to do that kind of work and there is a decided advantage in having the workman agreeably surprised by finding the work easier and more pleasant than he expected. Finally, the applicant is told of the ideals and standards of the establishment, in order that he may understand from the outset that he is coming into an organization in which high standards prevail, in which much is expected of every member, and which aspires toward an ideal and expects every member to contribute toward its realization.

The reaction of the worker to this talk is an excellent indication of his character. If he is looking for something easy he is likely to lose interest in the job when told its difficulties and when made to understand that much will be expected of him. If he is ambitious and eager for an opportunity to demonstrate his ability, this is precisely the kind of a job which appeals to him. His reaction to the information concerning the standards and ideals of the organization indicates whether he is likely to show a coöperative spirit.

b. References from previous employers.

When the condition of the labor market permits, references from previous employers should be obtained before hiring all applicants, except common laborers and perhaps some of the lowest grades of semi-skilled workers. Except in case of an extraordinary shortage of labor it is

possible to delay hiring applicants for from several days to a week without losing many due to their obtaining work elsewhere. A large Chicago metal working plant, for example, required references before hiring men for semi-skilled and skilled positions without interruption until the extraordinary labor shortage beginning early in 1916.

In order to facilitate replies from employers from whom references are requested and to assure that all desired points of information will be covered, standard forms of inquiry have been developed by many firms. To show their nature a number are reproduced herewith:

.....Engineering & Manufacturing Co.

.....Indiana.

Date.....

Gentlemen:

Mr. .....
Age..... Height..... Weight.....
Has applied to us for work as.....
And claims to have been in your employ as.....
..... Clock No.....

We will appreciate your answers to the questions on the reverse side of this sheet, and be pleased to reciprocate whenever our records may be of service to you.

Yours truly,

.....
Employment Dept.

I hereby authorize you to furnish the information requested. Signature of Applicant.....

(Form A)

Was he employed as stated?.....

Length of service?.....Character?.....

PLEASE CHECK WHICH

REASON FOR LEAVING				SKILL		PRODUCTION		HABITS	
Leave of absence	...	Own accord	...	Excellent	...	Fast.....	...	Regular...	...
Sickness.....	...	Laid off....	...	Average.	...	Medium..	...	Temperate	..
Injury.....	...	Discharged.	...	Poor....	...	Slow.....	...	Obedient..	...

Gave leaving notice?.....Would you reëmploy?.....

Comments.....

Signed.....

Date.....

(Form A, Reverse)

.....191....

M.....

.....

Dear .....:

M.....has applied to us for a position, giving your name as that of a former employer. It is necessary for us to verify applicant's personal character and record of time. We shall appreciate, therefore, an answer to the questions below at your earliest convenience, and assure you that your reply will be held strictly confidential, and that we shall be glad to reciprocate at any time.

.....Sons Co.

Per.....

Data Regarding Employment With You.

Department.....
Worked under.....

Entered your employ?.....Habits good while in your employ?.....Left your employ?.....
Strictly honest in every way?.....Position filled?.....
.....
Discharged or resigned and why?.....
.....
Name other places where applicant has worked?.....
.....
Work satisfactory? .....
.....
.....
Additional Remarks:.....
.....
.....
.....

Signed.....

(Form B)

.....has applied to us for a position as .....
On his application he stated that.....
.....
We require all applicants to furnish responsible references as to their respectability, qualifications for the position named, etc., and shall feel greatly obliged, and treat confidentially replies to questions below, together with any other information you may give us concerning him.

Yours truly,

.....

By.....

Is his statement correct?.....
Is he, to your knowledge, of good character and habits?....
Is his general conduct such as to entitle him to the confidence of his employers?.....
Do you consider him competent to fill the position he applied for?.....
Remarks: .....
.....
.....
.....
Dated.....191... Signed.....

(Form C)

The value of references from previous employers is subject to great diversity of opinion. Employment managers who have developed departments recognized as models for high grade, painstaking work are to be found on both sides of the question. The difference of opinion in regard to the value of references appears to be largely due to failure to analyze completely their possibilities.

The objections to references are:

1. The unwillingness of employers to hinder former employees in securing work elsewhere by making derogatory statements concerning them, even when the statements are true. This attitude is almost universal. A number of managers have stated to the writer that it is a matter of definite policy with them never to make derogatory statements concerning a former employee. Employment men state that they find this unwillingness to hinder former employees in obtaining work elsewhere seriously detracts from the value of references.[16]

[16] Some employers interviewed believed it to be improper, except in very exceptional cases, for them to give information which would

2. The worker's success at his previous job is an uncertain criterion how he will succeed at another.

3. Even if the former employer frankly expresses an unfavorable estimate of the worker it is far from conclusive evidence that the worker is undesirable. Aside from the obvious fact mentioned above that the man may have been unsuited to the work, the record a man makes in any shop depends largely on how he is treated—in other words, on the management as well as on the worker. Even

hinder a former employee in securing a job. Except in cases where a man was seeking work where his incompetence might endanger lives or large amounts of property, the writer is inclined to agree with their position for the following reasons:

1. Even assuming that the applicant was dismissed justly for incompetence or misconduct, it is impossible to see why a past offense should hang over him to prevent him from obtaining work elsewhere. He paid the penalty by losing his job. He is entitled to the opportunity to make a new start.

2. Incompetence at one job is no indication that the worker will be incompetent at other jobs.

3. In many cases of discharge considerable doubt exists whether the fault was the workman's more than the foreman's.

This point was made by an eastern manufacturer who gave it as one reason for refusing to give unfavorable information concerning former employees. He stated frankly that there were many cases of discharge in his plant (and his plant was an exceptionally well managed one, with a remarkably low turnover for a long period of years in spite of the arduous character of the work) in which the foreman or third parties were probably as much to blame as the man discharged. Tactless handling may have impaired the man's efficiency, although if judiciously handled he would have developed into a good man; the personalities of the foreman and workman or of a fellow workman may have been incompatible; in the stress of getting work out on schedule the foreman may have made demands which his absorption in getting out the product prevented him from seeing were unreasonable. In an argument over the subject the man flared up and told the foreman "to go to hell" and for the sake of discipline it was necessary to discharge him, although the provocation may have been great.

a good man who is treated with little consideration by a tactless, autocratic foreman is likely to make a poor record. When he feels abused and dislikes the company, he does no more work than is necessary, his discipline and his general attitude may be poor. A poorly managed shop will have comparatively few favorable recommendations to make of its past employees, simply because poor management brings out the bad rather than the good qualities in men. A well managed shop, on the other hand, can recommend a larger proportion of its employees.

4. In case of men discharged the employer's statement of the reason is often inaccurate. Many discharges are provoked by tactlessness of foremen rather than by intractability of workmen.

In spite of these drawbacks references are of value. Some employers give frank answers concerning previous employees. One employment man writes that in his observation the tendency to be frank is increasing as the custom of making inquiries concerning applicants becomes more prevalent. He writes:

"It is my experience that employers are becoming more careful of the letters they write. Occasionally an employer feels the least he can do for a workman is to say a good word for him, but most employers to-day, wishing to receive similar answers themselves, I think, go out of their way to write a careful and fair estimate of the workman's qualifications in their business, realizing even if critical, this does not prevent the man from getting work in some other line where he is better fitted, unless criticism is made on account of character."

The employment man of a piano manufacturer assures me that practically all of their requests for information are answered, and that in most cases the replies appear

to be frank. In many instances the writers have not hesitated to express unfavorable estimates.

Although many employers will not make unfavorable comments concerning past employees, usually they will not knowingly make favorable comments which are unwarranted. Failure to mention unfavorable qualities may be no proof that unfavorable ones do not exist, but the favorable estimates can usually be relied upon as true, to the employer's best knowledge and belief.

References from previous employers are valuable as checks upon the applicant's statements of the work he did, the pay he received and the length of time he was employed. The applicant is likely to misrepresent the work he did in order to show experience at the work for which men are being sought. If he knows that the firm is looking for lathe hands he may say that his previous work was as a lathe hand when as a matter of fact it was bench work. This is true especially of men who are seeking to advance into more skilled and higher paying work. The applicant is likely to overstate the rate of pay he received in order to give the impression that he is worth more than he really is. Finally, to convince the interviewer that he is not a floater and to avoid giving the suggestion, which a short duration of employment at any place gives, that his services were unsatisfactory, the applicant often overstates his period of service with previous employers. As a much needed verification of the applicant's statements on all of these points references from previous employers are decidedly valuable.

In hiring children references from teachers are desirable. Employment men as a rule state that teachers are inclined to be overgenerous in praise of former pupils. When the employment man establishes close contact with a school, becomes acquainted with the teachers and encourages them to send him promising graduates, the teachers

become more frank and conservative and references from them may be decidedly valuable.

7. Means of avoiding the hiring of floaters.

The best means of avoiding the hiring of floaters is not to hire on the day of the interview. The floater wishes a job at once. He will not usually return for a second interview and will not wait for the references he has given to be heard from unless jobs are very scarce.

If the applicant is too fastidious about the job, if he wishes a job made to order, he is likely to be a floater. On the other hand if he goes to the other extreme and is completely indifferent concerning the nature of the work, saying "any kind," "anything you got," he is also likely to be a floater.

Some floaters take pride in boasting of the number of shops and cities in which they have worked.

When two or more workers apply for work together they are likely to be floaters. If one becomes dissatisfied and leaves, the other is likely to leave also.

8. Other points in regard to employment practice.

A common practice when the hiring is done by foremen or an employment department of low standards is to attempt to beat the applicant down from the wage he states he wishes to the lowest which the interviewer believes he can be induced to accept. This practice is especially likely to arouse the resentment of the new man. He is quick to realize that the employment man is seeking to beat him down to the lowest he will accept. The applicant knows that the interviewer believes that he has him at a disadvantage because the applicant needs the job more than the employer needs him. This taking advantage of his unemployment appears particularly unfair to the worker. By so doing the foreman or employment man earns for the firm the workman's prejudice against it at the very outset, when he is most impressionable. The workman is sure

that the employer is unjust, that he cares little for his men, that he will take advantage of them at every opportunity. He starts work with the idea that it is a purely dollars and cents proposition, in which both he and the employer give the least for the most they can get. He withholds his coöperation. Appeals to his loyalty will be met with cynical indifference. Why should he be interested in the business and success of an employer who takes advantage of his unemployment to beat him down to the lowest cent he will take? Finally, when he has saved a little or when times are better, he will leave unless given a raise. When the raise is granted, however, it comes not as a reward for merit and good service from an appreciative employer, which wins his gratitude and loyalty, but rather as the payment of long withheld compensation—no more than his due and for which he feels no appreciation.

Instead of attempting to bargain with the applicant the factory should have a definite scale which is paid to all beginners at the job without exception and a special effort should be made to get men to whom this scale represents an increase over the rate at their last job.

Of particular importance in obtaining high grade men is the time allowed the employment department to fill requisitions. The employment man of a shoe factory says that he can fill positions on twenty-four hours' notice as well as he can in four or five days. The employment man of an automobile company also asks only one day. In hiring semi-skilled or skilled men the majority of employment men wish a longer time to be assured of getting a good man. The employment man of an adding machine manufacturer puts the notice he should receive at not less than two or three days. The employment manager of a manufacturer of tags and paper novelties says that in a majority of cases he should have a week's notice. The employment manager of a manufacturer of filing systems wishes three days' notice in

normal times and says that a week is a good thing. The employment manager of an automobile factory puts the minimum notice he should have as one day, but says the more notice the better. Another automobile manufacturer wishes three days. The employment man of a button company wishes as much "notice" as he can be given.

Proper notice to the employment man involves: (1) obtaining notice of prospective increases in the force; (2) obtaining notice from workmen intending to resign.

Adequate notice of increases in the force depends on the systematic planning and scheduling of work in advance and the notifying of the employment man of the additional men needed. In so far as unforeseeable emergencies necessitate increases, notice is of course out of the question. The hiring of new men may be postponed in such cases, however, by delaying regular work and by the use of emergency squadrons to assist on the emergency work.

The main problem is to induce workmen to give notice of their intention of resigning and this problem has received inadequate attention. Many firms which maintain elaborate and up-to-date employment offices make little or no effort to obtain such notice. Firms which endeavor to obtain notice from employees find it difficult to secure. A firm making tags and paper novelties which makes special effort to get notice estimated in 1916 that they obtained it in half the cases. The employment man of a Detroit automobile company estimates that they receive notice in half of the cases but thinks the proportion can be made larger. The labor supervisor of another Detroit automobile plant which has a rule (which is not rigidly enforced) requiring men to wait until the end of the pay period for their pay unless notice is given, estimates that twenty percent of the skilled and semi-skilled men resigning give notice. In a group of 191 men resigning from this plant 71

gave notice, in a group of 21, one gave notice. These groups included men from all parts of the factory. This indicates that the labor supervisor's estimate is conservative. A dyeing and bleaching plant situated in the vicinity of large munition works furnished me the following data on the number of resignations with and without notice:

Year	All resignations	With notice	Without notice	Percent giving notice
1913	1,473	649	824	44.0
1914	668	375	293	56.1
1915	1,329	449	880	33.8

Note the effect of changes in the labor market upon the proportions. In 1913, a year of prosperity, the number leaving without notice slightly exceeded the number giving notice. In 1914, a year of depression, those giving notice exceeded by a substantial amount those giving no notice. The year 1915, which in regions remote from war industries was for the most part a year of slack labor demand, was a year of brisk labor demand in the munition center in which this plant is located. In this year the proportion giving no notice was larger than in either of the other years.

The number of resignations with and without notice in a large rubber goods manufacturing establishment over a series of years was:

Year	All resignations	With notice	Without notice	Percent giving notice
1911	5,231	1,692	3,539	32.3
1912	15,293	4,144	11,149	27.1
1913	19,161	4,157	15,004	21.7
1914	4,176	1,201	2,975	28.8
1915	5,037	1,816	3,221	36.1
1916	23,124	6,768	16,356	29.3

Here the proportion giving notice shows a less marked variation with prosperity and depression. An unusually small portion gave notice in 1913, a year of prosperity, and an unusually large proportion in 1915, a year of depression, but in 1914 and 1916, years respectively of decided depression and of decided prosperity, the proportion giving notice is neither unusually high nor unusually low.

We should expect notice to be given less frequently in years of prosperity than in years of depression because: (1) in times of depression, when jobs are scarce, men take more thought of leaving a good record to help them in case they ever desire reëmployment, while in prosperous times when jobs are plentiful men are more care-free about such matters; (2) old employees are more likely than new ones to give notice. Old employees constitute a larger proportion of the total leaving in times of depression than in times of prosperity, because in times of prosperity large numbers of new men are hired who quit after a short period of service.

In order to induce workmen to give notice it is a common practice to compel them in the absence of a stipulated notice to wait until the end of the pay period for their pay. This rule, however, rarely is strictly enforced and cannot be without working frequent injustice. Some workmen are compelled to leave by circumstances beyond their control which permit no notice. Foremen realize this and are inclined to let workers have their pay when they give some such reason as leaving the city even though they doubt the workers' veracity. The rule of withholding pay is responsible for a large number of cases in which "leaving town" is fictitiously given as the cause for leaving. Even when enforced, the rule is ineffective as a means of discouraging resignations without notice. If a workman is attracted by an opportunity to make better money he will

take advantage of it at once in order to be sure of obtaining the job. He will not risk losing a permanent benefit because of the inconvenience of having to go back for his pay. The rule, however, often results in the employment office losing the opportunity to interview the man before leaving and to learn his reasons for leaving, because when the worker simply receives his pay in the regular manner the employment office cannot conveniently get in touch with him. If the worker is permitted to obtain his pay at once by an order signed by the employment manager, the employment office obtains an excellent opportunity to interview him and to learn his reason for leaving. By this plan also the employment office secures the opportunity to interview the worker usually before he has obtained work elsewhere and may possibly induce him not to leave. When he returns for his pay, however, he usually has obtained another job and even if an interview with him is obtained, the opportunity to hold him is gone.

The practice of holding back a portion of the worker's pay causes him to give notice in case he intends to work up to pay day. Holding back several days' pay is usually unavoidable because it is impossible to pay up to the day on which the pay is distributed. If pay day is Saturday, the payments will usually cover work done up to Wednesday or Thursday night. If a workman intends to quit on Saturday and wishes his pay for work done since Wednesday or Thursday, he must notify the time-keeper or payroll department in order that it may be arranged to give it to him. In this way the firm obtains some notice of the worker's intention of quitting, although often the notification may be given only in the morning of the day of leaving.

Mr. Richard A. Feiss states that the Clothcraft Shops pay a bonus for notice equal to a day's pay for every

week's notice up to and including four weeks.[17] A bonus for notice is also given by the dyeing and bleaching works mentioned above.

The relations between the men and management greatly influence the men's willingness to give notice. If the relations are friendly the men are inclined to give notice because they feel it is the fair thing to do, because they wish to leave a good record at a desirable place of employment to which they may wish to return, and because they do not fear that perhaps they will not be treated with consideration if it is known that they are about to leave. If relations are not cordial, however, the workers not only feel no obligation to give notice as a matter of fairness, but are likely to feel toward the firm a positive resentment which disinclines them to go out of their way to assist it. They have no desire to return to the place, and are afraid that if the firm knows their intention to leave they may be taken advantage of during their remaining days of employment. The fear that employers will show less consideration to men who they know are about to leave is widespread and is a serious obstacle to inducing workers to give notice.

[17] Richard A. Feiss, "Personal Relationship as a Basis of Scientific Management," *Bulletin of Society to Promote the Science of Management,* v. I, p. 13; *Annals of the American Academy of Political and Social Science,* v. LXV, May, 1916, on "Personnel and Employment Problems," p. 51.

CHAPTER XV

BREAKING IN THE NEW WORKER

1. Importance of the breaking in process.

Efficient hiring is the first method of following up the advantageous position which the enterprise attains by the establishment of the fundamental prerequisites for the reduction of the turnover—liberal wages, steady work, mitigation of physical strain, and provision of good working conditions and short hours. The second follow-up method is a careful and well planned system of breaking in new workers. Obviously the better the grade of workers hired, the more important becomes the breaking in process, because every worker who now leaves because of failure to become adapted to his job and surroundings and every worker who is not developed to the extent of his capacity represents a greater loss to the firm. The provision of better working conditions in order to attract a superior grade of workers and the more careful selection of men as the result of superior employment methods enhance the importance of the breaking in process and require that closer attention be paid to breaking in men in order that the full benefits of the better working conditions and of the better hiring methods may be realized.

The breaking in period is the most critical time in the worker's career in the establishment. This is shown by the large number of workers who leave in the early periods of employment. In 7 plants listed in Table V on p. 48, an

average of 58.7 percent of all workers leaving had been employed less than three months.[1]

The reasons why the breaking in process is especially critical are:

1. The new worker feels himself more or less a stranger in the place, and this feeling of strangeness, as has been pointed out, tends to render him more than ordinarily critical of conditions in the shop. He is inclined to see the unfavorable features more prominently than the favorable ones.

2. The impressions of shop and management formed by the worker during this period, being first impressions, are likely to stay with him and influence his future attitude toward the management.

3. The worker's job during this period is more difficult than at any other time because he is in the learning stage. The new employee is likely to be somewhat nervous and lacking in self-confidence during the learning period and this increases his difficulty of learning and his liability to discouragement.

2. Introduction of the worker into the organization.

The first step in the breaking in process is the introduction of the worker into the organization. The sooner and more thoroughly that he is made to feel himself a part of the organization the more quickly his critical attitude due to his feeling of strangeness disappears.

The new worker is made to feel himself a part of the organization by the organization's taking an interest in him, by its convincing him, through individual attention shown him and assistance extended to him, that it is interested in his success. This not only causes the worker

[1] In one instance the percentage figure given was the proportion of all leaving who had been employed less than 3½ months; in another case it was the proportion of all leaving who had been employed less than 10 weeks.

to feel himself to be a part of the organization and less of a stranger but it wins his gratitude and arouses his loyalty and thereby still further prevents him from developing a hypercritical attitude. The elementary fact cannot be too firmly stressed that the degree of tolerance which workers show toward the more or less disagreeable features that are an almost inevitable accompaniment of most jobs depends largely upon their general attitude.

The new worker should not be told to report directly to the foreman of the department in which he is to work, or to the head of the instruction department, if there is one. He has not met these persons and the fact that he must look up and introduce himself to strangers tends only to accentuate his feeling of strangeness. The foreman or chief instructor, moreover, may be busy and unable to give the worker immediate attention. It is important that new hands should not be compelled to wait to receive attention and should not be left with nothing to do.

The worker should be told to report to the employment department, the location of which he knows and where there is some one he has met. In establishments which give most attention to introducing workers into the organization, the worker is usually not taken directly to work. In the first place he is usually made familiar with the plant. If there is a plant restaurant, lunch room, recreation room or library, he is shown its location. If individual lockers are provided, he is assigned one and is shown its location. If there is a service or welfare department, the new worker may meet the head. In fact it is the practice in some plants for the employment department to turn the new worker over to the service department at once and for the service department to perform the work of introducing the worker into the new organization. This has the advantage of giving the service department a better opportunity to become acquainted with the worker.

At the time of the interview before being hired the worker was told the standards of the firm and what would be expected of him. It is unnecessary, therefore, to explain these things to him. He is given a booklet of rules and information, however. This booklet, traditionally known as the book of "Rules and Regulations," is now frequently called by a name less likely to arouse prejudice. "Valuable Information for Guidance of Employees," "Employees' Handbook," "Book of Information and Instruction," "Information for Employees," are the titles of some of the books collected by the writer. One company has the worker's name typewritten on the cover as they believe this renders him less likely to throw away the book without reading it. Other companies leave blank pages for memoranda in the back of the booklet.

After these preliminaries the worker is taken to his foreman or to the instruction department. The worker should not be compelled to wait before receiving attention from the foreman or the instructor unless this is absolutely unavoidable. Failure to give immediate attention to the worker gives him the impression that not much interest is being taken in him—precisely the impression which it is important to avoid.[2] New men on account of their susceptibility to discouragement and dissatisfaction require exceptionally considerate treatment from foremen, and foremen should be impressed with the importance of special care in dealing with them.

The most important factor in ridding the new worker

[2] The employment manager of a western manufacturer of an automobile accessory found that a considerable number of workers were leaving before starting work simply because the foreman compelled them to wait while he was busy at something else. While the writer was interviewing the employment manager, a worker hired as a machine hand left in disgust without starting work because he had waited two hours without receiving attention from the foreman.

of his feeling of strangeness and in assimilating him into the organization is his relations with his fellow workmen. One of the numerous disadvantages of national, religious, or fraternal cliques is the barrier which they impose upon new men not belonging to the nation, religion, or fraternal order, in developing cordial relations with their fellow workers. In order that the development of acquaintance between new men and old hands may be aided, it is the custom in some plants to introduce the new worker to an old employee who is made responsible that the new man does not go off and eat his lunch alone and who acquaints him with other workers. The factor of fundamental importance in the assimilation of new workers into the organization, however, is the existence of a well developed coöperative spirit. Where a vigorous group spirit exists the absorption of new men into the organization will take care of itself and cause the management little concern; where this spirit is lacking, the assimilation of new men will be more or less of a problem.

3. Instruction of new workers.

The introduction of workers into the organization, although important and worthy of careful attention, is of far less consequence than the training of workers for their new jobs.

The instruction of workers is of particular importance from the standpoint of reducing the turnover because:

1. Teaching the workman his new job offers by far the best opportunity the management has of convincing him that it feels a real interest in his success. The preliminary work of causing the new worker to feel less of a stranger in the plant offers the management opportunity to show him careful attention but is less important because it concerns far less important matters. Substantial assistance extended to him in learning the job goes a long way toward winning his appreciation because the benefits he derives from it are

so tangible and substantial. As men are loyal to those who show an interest in them and attempt to assist them in their difficulties, the help given the worker in mastering his job in the early stages when it is new to him and more difficult than at any later time furnishes an unequaled opportunity for winning his good will and for creating an attitude on his part which will go far toward permanently establishing good relations between him and the management.

2. Efficient instruction of the worker in his job by mitigating the fatigue and difficulties due to ignorance of how to do the work, lessens the danger of his leaving because the work is too hard for him or because he is discouraged over his inability to master it.

3. Efficient instruction increases the worker's earnings and lessens the danger that he will leave because his earnings during the learning period are low and because he feels that there is no money in the job.

4. Efficient instruction shortens the learning period during which the worker is unable to produce the normal output and thus shortens the period during which the risk of his leaving is particularly great. The more rapid acquisition of proficiency which efficient instruction makes possible is in itself an encouragement to the worker. The pleasure he derives from more rapid progress causes him to be more contented generally, to see things in general in a favorable light. An important effect of the discouragement which is so often caused by difficulties in the job or by low earnings during the learning period is that it leads the workers to see things in general in a pessimistic light.

5. Because of the suggestible and impressionable state of mind of the worker during the learning period and because of the peculiar opportunity the person who helps him has to win his confidence, imparting instruction offers an exceptional opportunity to educate the workman in the ideals and standards of the organization, and to infuse him

with the right attitude toward his work. An efficient corps of instructors can influence the attitude of workmen toward their work and toward the management because:

a. They can do much to create an interest among workers in their work, to give them a vision of its importance and significance, to foster a pride in it and a spirit of workmanship. This attitude does much to enable the workman to derive pleasure from his task and to render him more contented as well as more efficient.

b. They can be of substantial influence in arousing ambition and definite aim in workers. They can give a vision of the possible future ahead for efficient workmen and advance the workers' faith in their ability to advance to better paying and more responsible jobs. One of the principal reasons for lack of ambition among workers is their lack of confidence in their ability to succeed. A certain self-confidence and hope of success is necessary to nourish ambition. This is precisely what workers frequently lack, and encouragement to have faith in their own abilities is one of their greatest needs. The importance of definite aims in preventing aimless drifting, resignations for trivial reasons, unwillingness to make the effort necessary to master a job, etc., is too obvious to require discussion.

6. Close supervision during instruction offers an exceptional opportunity to discover misfits and to transfer them to other work before they become dissatisfied and leave.

Three methods are ordinarily used to instruct new men in their work:

1. Instruction by the foreman.
2. Instruction by the gang boss.
3. Instruction by experienced workmen.

These methods are unsatisfactory for the following reasons:

1. Adequate instruction presupposes that the instructor has worked out the best way to do the job. One of the most

important facts which motion study has demonstrated is that there are scarcely any operations so simple that the average man does them naturally in the simplest, easiest, and quickest way. In order to ascertain the best way, long and painstaking study and experiment are necessary even for simple operations. The foremen, the gang bosses, or the workmen assigned to teach the task are unable to make such investigations and consequently the method which they teach is not the least difficult, the least fatiguing, and the quickest.[3]

2. Because the foreman, gang boss, or workman assigned to teach the job has not intensively studied the operation, he is more or less unfamiliar with the errors made by inexperienced hands, and with features of the work which are particularly difficult to inexperienced hands. Even more ignorant is the foreman or old worker of the *reasons* why particular features about the operation are difficult to learn and by what changes in the methods of doing the work the difficulties of the new hand can be lessened. In this connection it should be noted that new workers have widely varying reasons for their difficulties. The instructor, therefore, should have the ability to diagnose what the reason for any difficulty is and this ability inexperienced instructors such as foremen or workmen often lack.

[3] Motion study may be said to have demonstrated that there is no such thing as "unskilled work," in the sense that the average man without careful instruction will perform the operation in the easiest and quickest way. Not only does the average man not naturally perform the operation in the easiest way, but to discover the best way requires analytical powers, knowledge and apparatus which he does not possess. This is true even of what appear to be the most simple and unskilled operations. Shoveling and folding cloth are examples of comparatively simple operations in which motion study has revealed vast possibilities for improvement over the haphazard methods which workers naturally use.

3. The foreman, gang boss, or workman-instructor lacks training in how to impart instruction and often the natural ability to impart it. The instructor must not only be able to give information clearly and simply but he must understand the psychology of the new hand and adapt his method to it. He must understand that he is dealing with a person who is more cr less nervous, perhaps decidedly lacking in self-confidence, who is on this account likely to misunderstand instructions and make foolish mistakes, and who is particularly susceptible to discouragement. Foremen and others, if not natural teachers, fail to allow for these facts, attribute mistakes to stupidity or to incompetence rather than to nervousness, and make the fatal error of losing patience and of frightening or angering the worker.

4. The personality of the foreman, gang boss, or workman assigned to instruct may render him undesirable as an instructor. This is especially likely to be true of foremen of the old school, products of the "drive" system, which produces disciplinarians and drivers. Their gruff, curt manner is likely to aggravate the nervousness of the new hand, and to render him reticent about asking assistance. Foremen of the old school have also frequently developed the habit of severely criticising mistakes but not of commending good work. The new hand more than any other needs encouragement and commendation for good work.

5. Foremen, gang bosses, and workers assigned to give instruction do not feel sufficient interest in, or responsibility for, their instructional work. They have other duties to perform and wish their instructional work to interfere with these duties as little as possible. As a result the new workers fail to receive sufficient supervision and attention from them.

Three principal methods have been adopted to improve the training of new workers over the training given by fore-

men, gang bosses or non-specialist workmen instructors. These methods are:

1. Instruction by specially appointed workers.
2. Reformed plan of instruction by gang bosses.
3. Instruction by a special training department.

1. The plan of instruction by specially appointed workmen-instructors differs from the instruction which is now given by experienced workers in that the workman-instructor, instead of being selected to teach the new man in a *particular case,* is permanently employed to act as instructor for *all* new men hired for a given operation or group of operations. In addition to being guaranteed against a loss in earnings below their average rate while engaged in instruction, the workmen-instructors are usually given a bonus. For example, in an eastern plant making paper novelties workmen-instructors receive about $3 per week more than is earned by the best workers on the operation.

This plan has the advantage that the workers selected usually possess qualities of personality and aptitude for instruction which particularly fit them to train new men; that, being used to instruct all new men at the particular operation or operations, they acquire greater familiarity with the nature of the operation and the difficulties of inexperienced workers at it; and, most important of all, that being specially designated instructors they feel a greater responsibility for the satisfactory performance of their work and give more attention to studying the problems of instruction and more time and attention to teaching the new men. An advantage in having the instruction given by one of the regular workers is that he serves as a means by which the new hand becomes acquainted with the other men.

The workman-instructor system, however, does not eliminate all the disadvantages of prevailing plans. The workmen-instructors lack sufficient training and ability to work out for themselves the ideal way of performing the opera-

tion which they teach. If motion studies have been made of the jobs and the best methods of doing the work ascertained by the efficiency department, this objection, of course, does not apply. Workmen-instructors lack training in methods of imparting information and usually are less able than professional instructors to work out effective methods of presenting information. They are likely to be weak in the ability to diagnose precisely what troubles workers who have difficulties. The regular work of the workmen-instructors is likely to interfere with their giving adequate attention to new men. Rush times, when the workmen-instructors are most busy with their regular jobs, are precisely the times when the greatest number of new men are being hired and when the workmen-instructors are most needed for instructional work.

In order to assure that high instructional standards are maintained, it is desirable that the workmen-instructors be under the supervision of a professional who devotes full time to the direction of training and is definitely responsible for its efficiency. The duties of such a supervisor are to oversee the work of the workmen-instructors, to correct their faults, to weed out those who prove not to be natural teachers, to imbue the force of instructors with pride in and enthusiasm for their work, and to develop an *esprit de corps*. The professional instructor in essence is a teacher of teachers. His task is to teach the workmen-instructors how to teach others.

An important advantage of the system of workmen-instructors is that it furnishes excellent material for foremen and gang bosses. The workmen-instructors not only acquire an intimate knowledge of the work but they also acquire an exceptional understanding of human nature and of the management of men, for there is scarcely a better means of studying human nature than by attempting to teach. Their instructional work also develops knowl-

edge of the difficulties which workers experience, patience and sympathy with them and the desire to be of help to workers—an attitude infinitely superior to the brusque, officious, and autocratic manner so prevalent among minor executives under the "drive" system of management. The present tendency of opinion is that the foreman should so far as possible be a helper rather than a driver and instructional experience tends to develop this sort of men.

The plan of workmen-instructors has been successfully used by the Packard Motor Car Company. In many of its departments it has an experienced machinist who is given from 10 to 12 men to train to operate a particular machine such as drill press, grinder, milling machine, lathe, boring mill, gear cutter, etc. The work is under the general charge of a man who was formerly one of the best foremen. The learners are kept continuously on the one machine. They do not learn how to do simply one or two jobs but are given an all-round experience on the *single machines*. At first they are given rough jobs and gradually progress to more exacting work. During their training the men are under the supervision not of the foremen of the department but of the instructor, and are responsible to him. During the training period the men are not held responsible for the amount of their production but are held strictly for the scrap which they make. The training period lasts for about two months. A report on the worker is then made to the employment department. If it is favorable he is given a raise and transferred to the authority of foremen on the same footing as other men in the department. The plan is said to give splendid results.[4]

[4] Based on an account by Mr. H. F. Dumbleton before the National Association of Corporation Schools, *Proceedings,* 1915, pp. 763-767. Mr. R. H. Tawney in his work on *Minimum Rates in the Tailoring Industry,* pp. 143-144, gives an account of the experience

2. The reformed system of instruction by gang bosses occurs under "scientific management." The gang boss, or "group supervisor" as he is sometimes called, has charge of a small group of ten or twelve men. Often the group supervisor himself works as an operative part of the time. Sometimes the group supervisors are the only executives in direct charge of the men—the departmental foremanship being abolished.

Instruction of new men by group supervisors under "scientific management" differs radically from the instruction of new workers by the gang bosses under prevailing systems of management. In the first place, standard methods of performing operations have been worked out by means of motion studies, so that instead of the new worker's learning the method which the gang boss *hap-*

of certain manufacturers in the English tailoring industry with the training of workers by specially appointed workmen-instructors. Attention to the training of workers was forced upon the manufacturers by the establishment of minimum wage rates in the industry and the consequent necessity of making the workers worth what the law compelled the manufacturers to pay them.

"'Up to about 18 months ago,' a large manufacturer told us, 'we had no regular system at all of teaching learners. The result was that they picked the trade up, and became very inefficient workers, earning a low wage because they were not worth more. When the Trade Boards Act was passed I realized that different methods of training would have to be adopted. It became necessary to make them worth the wage which they would have to be paid. Our present system, therefore, is to set one worker to train four learners at a time. . . . There has already been a marked change in the capacity of some of the workers.' 'We have made a new departure,' said another firm, 'in the matter of training. We started a school for learners and paid one of our employees to teach them.' 'We now pay a woman to teach our learners instead of letting them pick up the trade,' is reported by two other firms. 'Since an employer must now pay progressive rates to learners,' stated a foreman, 'he takes care to see that they are carefully trained so as to be worth the extra money.'"

pens to know, he learns the best method which systematic investigation has succeeded in discovering. In the second place, the conception of the gang bosses' duties under "scientific management" *at its best* is very different from the conception under prevailing systems of management. Instead of being primarily a "driver" as he is under prevailing systems, under "scientific management" *at its best,* the gang boss is primarily a teacher. His duty is to teach his workers to produce more. Instructional ability plays a large part in the selection of gang bosses under "scientific management." Instruction being a more important part of the group supervisor's or gang boss's duties, the group supervisor takes a greater interest in it and feels a greater responsibility for doing it well. It is less likely to be neglected for other duties.

Although under "scientific management" instruction is one of the principal duties of group supervisors they are not professional instructors and lack the training in methods of giving information and handling learners, and they also lack the standards of efficiency which professional instructors possess. As under the workman-instructor plan, therefore, there is need for a professional instructor at the head of the instructional work, to train the group supervisors in methods of instruction and to see that high instructional standards are maintained.

3. The third method of training help is by a separate training department. Such a department is necessary where preliminary instruction and practice are desirable before letting the worker begin to do the actual work, that is, where instruction on the job is undesirable. It is desirable also where large numbers of workers are to be trained or where the work to be taught is intricate and difficult, requiring a specialist to know it and to be competent to teach it.

Separate training departments are very numerous but

they are confined in the main to a few lines of work. They are devoted mainly to:

1. Training skilled workmen (apprenticeship courses).
2. Training future executives (such as the "cadet" courses for breaking in college men).
3. Training salesmen.
4. Training office workers.
5. Training certain types of semi-skilled workers who are not obtainable in the labor market and who cannot satisfactorily be trained from the outset on the job. Telephone operators and street railway trainmen are examples of semi-skilled workers of this sort.[5]

[5] Numerous excellent descriptions of the training systems on street railway companies will be found in the *Electric Railway Journal.* These systems are often very elaborate. The equipment includes a complete street car with parts and wiring exposed, unassembled or partially assembled motors, air apparatus, etc., switch sections and sections of track to show their construction, signal apparatus, etc. On some systems the training department has as much as a mile of practice track for trial runs. The instruction for motormen consists of lectures on the construction of the car, on methods of operating it, operating troubles, mistakes to be avoided, etc., practice operation and runs in actual service. In the practice operation the motorman is told to start the car on the signal. Without his knowledge some part is put out of order so that he is unable to start. He is required to find the trouble for himself and in this way learns the numerous possible disorders of a car. Before being permitted to operate a car in actual service on his own responsibility he operates under the direction of an instructor for several days. After the continuous supervision is ended he is re-observed at frequent intervals by instructors to correct mistakes and to assure that he is maintaining due caution.

The *Bulletin* of the National Association of Corporation Schools contains numerous descriptions of apprenticeship courses and of courses for office workers. Many of the training departments are very elaborate. Mr. George B. Everett of the National Cloak and Suit Company, describing the office school of that company, says

It is evident from the above list that the concentration of the training of workers in the hands of a few full time professional specialists has made very little progress in so far as the great mass of semi-skilled workers are concerned. The advantages of having instruction given by specialists who, presumably at least, are better qualified by training and natural aptitude than non-specialists to give instruction and who have a greater feeling of responsibility, interest, and pride in their work than non-specialists, are so great that as the importance of the thorough instruction of workmen becomes more adequately appreciated, we may expect a rapid growth in the instruction of semi-skilled operatives by professional instructors who devote their entire time to the work. The failure to appreciate the importance of the systematic training of workers ac-

that 500 to 600 students are enrolled in its vocational courses, not all of them, however, newly hired workers. (*Bulletin National Association of Corporation Schools,* August, 1915.) Instruction is given in arithmetic, geography, typing, English, hygiene, spelling, penmanship, salesmanship, rapid calculation, filing, proofreading, auditing, package opening, mail reading, listing merchandise, filling orders, mail checking, sheet analysis, mail examining, examining merchandise, assembling orders, stock records, mail assorting, traffic, ready made order writing, returned goods adjusting, made-to-measure order examining, complaints adjusting for head clerk, bank order writing, order advising, general mail adjusting, correspondence. One hour a day is given to instruction. Class sessions vary from one week, 5 hours, to three months, 60 hours. All classes are conducted in business hours, the workers receiving full pay. Enrollment in each class is limited to 20. Candidates for classes usually take an entrance examination which serves to eliminate the unfit and to grade the others according to ability. During the course tests are given and a final examination at the end. The results are filed and help determine the promotion of employees. The texts are prepared by the teachers in consultation with the heads of the department concerned. The school is stated to be the center of the office system and in a sense a planning department.

counts for the utterly inadequate methods prevailing at present. In the future the instructional work will constitute one of the most important branches of management and the instruction given will be much more minute and refined than is now the case.[6]

A special case of instruction of much interest is that of office and errand boys. It is a growing practice to provide an instructor for boys and to have them spend an hour or half hour each day or several times a week in the classroom on the company's time. In a large Chicago plant employing about 200 boys, the boys spend five 20-minute periods every two weeks in the classroom. A Chicago printing establishment has adopted the policy that no boy shall be employed in the plant who is not preparing to learn a trade. The firm seeks to have all errand and messenger work done by boys who are pre-apprentices, that is, undergoing the preparatory training for taking the apprenticeship courses. These boys are in the classroom 3½ hours daily. Until the great difficulty in obtaining boys caused by war conditions, the firm was able to adhere to the rule of employing no office and errand boys who were not also pre-apprentices.

The instruction of boys offers special opportunities because boys are peculiarly susceptible to influence. An instructor who understands them can perform an invaluable

[6] Systematic instruction under professional instructors is destined to radically change our ideas of the time necessary to acquire proficiency in various occupations. The time necessary to turn out skilled workmen is surprisingly short when the workers are trained according to well planned methods rather than left "to pick up" the trade for themselves. The experience of the Government in training workers for war work should be of the highest value to manufacturers by showing the tremendous possibilities in systematic instruction, its superiority over haphazard methods, the best methods of instruction, and the results which are attainable by well planned and well given instruction.

service by influencing the boy's attitude toward his work, by arousing his ambition, by developing in him a sense of responsibility, a feeling of pride in work, and a spirit of workmanship. In this way the instructor provides unexcelled material for skilled workmen, salesmen, minor executives, and for office positions.

The instructor acts not only as a teacher but as a vocational counselor. He ascertains the aptitudes and preferences of boys and assists them in finding within the plant work which interests them.[7]

Boys are proverbially transient, but a good instructor, by stimulating their interest in their work and by arousing and focusing their ambitions, assists materially in holding them.

The work of the instruction department can be advantageously combined with the work of the research and efficiency department. If the instructors are also efficiency experts engaged in the study of working methods and of their improvement, their instruction is improved by their practical study of processes of work. The work of teaching processes to beginners, on the other hand, is likely to suggest many possible improvements in the processes. From the difficulties experienced by new men, instructors obtain a better knowledge of the difficulties of the jobs than does the mere time and motion study man, and knowledge of these difficulties suggests changes in the methods of work to eliminate them. Appreciation of the difficulties of the operation derived from teaching new hands is of great use in time study work because it tends

[7] The question may be raised whether the boys' interests will be duly observed by instructors paid by their employer. Certainly the possibility of a conflict of interests exists. The interests of the boys at stake are so important that this question requires thorough study. Some firms have entered into a coöperative arrangement with the public schools by which the schools supply teachers.

to prevent the setting of unduly fast standards. As Professor Hoxie has pointed out, the lack of intimate knowledge on the part of the time and motion study men of the processes of doing the work is one of the weakest links in "scientific management," since the setting of standards does not depend upon scientific criteria but upon the judgment of the observer.[8]

4. Payment of the new worker.

The system of payment of new workers should be designed to stimulate the rapid development of efficiency by the new worker not only because greater efficiency means lower costs but because it lessens the likelihood of the worker's becoming dissatisfied or discouraged because of his lack of proficiency, and quitting.

If the job pays piece wages, it is necessary to pay the workman day work until he is able to earn a reasonable amount at piece work. Instead of paying him a flat day work rate until he is able to earn more than the day work rate at piece work, it is desirable to make the amount he receives dependent upon the quantity of his production. This stimulates him to increase his production and the fact that he is earning a little more each week is a great encouragement to him.

The workman's earnings during the breaking in period may be made dependent upon his production by a system of day work payments on a descending scale. This may be a scale of decreasing absolute amounts or of decreasing percentages of his piece rate earnings. The following is an example of a scale of decreasing absolute amounts:

First week: Worker receives full day work only which may be assumed to be $18.

Second week: Worker receives $8 plus regular piece rate for quantity produced.

[8] *Labor and Scientific Management*, pp. 39-61, especially pp. 46-47.

Third week: $6 plus regular piece rate for quantity produced.
Fourth week: $3 plus regular piece rate for quantity produced.
Fifth week: Piece rate only.

An example of a percentage scale is as follows:

First week: Day work only, $18.
Second week: Regular piece rate quantity produced plus 66.7 percent of piece rate earnings.
Third week: Regular piece rate plus 40 percent of piece rate earnings.
Fourth week: Regular piece rate plus 15 percent of piece rate earnings.
Fifth week: Piece rate only.

If an average good man can earn $24 at piece work after four weeks' experience, the scale, if properly calculated, should enable him to increase his earnings from $18, the amount paid the first week, by gradual steps each week to $24 for the fifth week. Under this plan the employer pays the worker more than he would pay him under the plan of paying flat day work rate of $3 per day until the worker's earnings at piece rates exceeded that amount. The employer, however, receives a greater output because of the stimulus of wages dependent upon the output and the worker receives the encouragement of earning an increase in his wages every week.

In order to mitigate the discouragement which workers are likely to feel over bad days, it is wise to guarantee them a minimum wage, at least during the learning period, independent of the amount which they produce.

A firm which uses a declining percentage scale states that it is contemplating changing to an absolute scale such

as is shown in the first example because they desire a scale which the worker can visualize more easily. A guarantee of $10 per week day work is $10 but a bonus 66.7 percent of an unknown amount of piece rate earnings is nebulous.

Although the breaking in period on a job may last only a month or several months, it is usually a year at least before the workman feels well settled in his job or in the shop. During this period he is especially likely to quit. Encouragement of the worker, therefore, is especially needed during this period. Nothing is a more substantial encouragement to him than an advance in wages. Because wage increases mean more to the worker during the early stages of employment than at any other time, some employers have adopted the policy of granting small but frequent wage advances during the early stages of employment. As the duration of service increases, the frequency of the wage advances becomes less. This policy is followed by some telephone companies. The scale of a middle western company for operators provides for an increase of $1 a week at the end of the first month, 50 cents per week at the end of the second month and the same amount at the end of the third and fourth months. It should be noted that the size of the increase is of secondary importance. The important fact to the worker is that he has been given a raise. This in itself is a substantial satisfaction and encouragement to him and aids materially in attaching him to his job.

CHAPTER XVI

THE HANDLING OF MEN

The discussion of the methods of handling men will be confined primarily to four problems of outstanding importance, namely:

1. Wage payments based on merit.
2. Systematic promotion based upon merit.
3. Improvement of the methods of handling men by minor executives.
4. An adequate method of handling grievances.

1. Wage payments based on merit.

The advantages of basing wages on merit are:

1. The obvious advantage that a workman who has received an increase is better satisfied because of the higher wages he earns.

2. The fact that every acquisition of dexterity, ingenuity, and speed brings the workman a reward in higher earnings, creates a definite object for him to strive to attain. This introduces into his job a spirit of contest and struggle. The human mind has been trained through countless generations to delight in the struggle to attain desired ends. The introduction of a definite object for the workman to strive for, in itself renders the work more interesting and attractive.

3. Earnings based on merit introduce opportunity for competition between workers. Love of competition is another trait which has been impressed upon human nature by the character of men's past activities. The pleasure which the worker derives from competition with his fellow work-

ers is due to his love of distinction and to the same love of contest which causes him to derive pleasure from the struggle to attain a given level of wages.

4. Success which the workman attains in increasing his wages is gratifying to his sense of achievement. He is pleased to have this tangible proof of progress and accomplishment and feels the pleasure which comes from the consciousness of something achieved.

5. Success in winning wage increases gratifies the worker's love of distinction.

6. The effects of success in winning wage advances frequently are cumulative for the satisfaction derived from one wage advance arouses the desire for the attainment of subsequent advances. It is a common observation that ambition is often cumulative—the more it is realized the more it grows. This is true of workmen as it is true of other men. It is an example of the very familiar fact that the pleasure derived from the satisfaction of a certain want intensifies the want.

Another reason why one success in obtaining a wage increase often stimulates the desire for further increases is that the higher standard of living which the worker is able to maintain by reason of his higher earnings creates new wants. It is the old case of the more we have, the more we desire, of the possession of one article creating the desire for additional articles to go with it. The greater self-respect which a worker feels because of his advancement operates in the same manner. He feels that he should now have things which he previously had thought beyond him.

A third reason why one wage increase breeds the desire for subsequent wage increases is that one success tends to overcome the worker's lack of confidence in his ability to advance himself. It is human nature to put out of mind those things which seem beyond reach. One of the most common reasons deterring workers from making efforts

to advance themselves has been lack of faith in their ability to succeed.

7. The granting of an increase in wages constitutes a recognition by the employer of the workman's capacity as a workman. The fact that his ability is taken notice of by the employer is naturally gratifying to the worker and fosters his good will toward the employer.

8. All of the above elements which foster the worker's interest and pleasure in his work are cumulative in their effects because an interested workman is more contented than an uninterested one. The view he takes of things is less critical. Everything about the job and shop appears to him in a more favorable light.

9. Wage payments based on merit enable the management to attract and hold a superior class of workmen. How keen workmen in general are to better their condition is shown by the large number of resignations due to more attractive opportunities elsewhere. It is precisely the most ambitious and competent workers, whom the management has the greatest interest in retaining, who are most likely to be attracted by opportunities to do better elsewhere. These also are precisely the workers who best appreciate the opportunity to win wage advances by the demonstration of merit, and who are likely to seek work where such opportunity exists. Such workers, too, by winning wage increases through the demonstration of their merit soon attain earnings above the amounts customarily paid for similar work elsewhere so that they are less likely to be drawn away by the opportunity to earn more.

The effectiveness of a system of basing wages upon merit depends upon the certainty of the reward following the exhibition of merit. The more automatic the reward of merit, the stronger the system. The piece work, bonus, and premium plans of wage payments are all automatic in their operation and desirable for this reason. The piece work

system has been ineffective in stimulating greater production in the past because of the prevalence of the piece rate cutting policy which was analyzed in Chapter VIII. The abuse of the piece work system has caused workmen to regard all merit systems of payment simply as speeding up devices and this prejudice is frequently difficult to overcome.

Special conditions may, however, render a piece work, bonus, or premium system less desirable than a time system. If a time system of payment prevails, a method is needed which will secure prompt advances of individual rates in accordance with individual merit.

Two things are essential in order to accomplish this: (1) reliable records indicating the merits of each worker, and (2) a means of assuring that the records are consulted in order to determine who are entitled to increases.

Individual records of merit and efficiency are discussed in section 3 of this chapter.

In order to assure that the efficiency records will be consulted in order to discover workers entitled to increases it is customary to set definite times at which these records are revised and inspected. Tolman[1] cites the case of an employer who said: "I go over my payroll every Saturday night to see whose salary I can raise. My men are less anxious for advancement than I am to promote them."

This is a shorter period than is usual or necessary. Usually the efficiency records are revised and inspected every three months or every six months, or in the case of old employees, perhaps every year. In a plant manufacturing tags, paper boxes and paper novelties, inspection occurs monthly. The employment manager writes: "Our department must go over their payrolls once each month and recommend pay advances for deserving employees. Their recommendations are prompted by the employees'

[1] *Safety*, p. 386.

showing as indicated by individual production records. This estimate is supplemented by considering other factors such as number of suggestions and number of errors made by each employee."

This plan of having the records of the men inspected by each department head is the most usual method for assuring the recognition of merit. The recommendations of the department head are sent to the person authorized to grant wage increases for approval.

The above system of awarding increases does not presume that all workers should be entitled to increases as their duration of employment increases. It simply provides a means of ascertaining which workers are entitled to increases and of granting the increase. It ignores the workers who are not entitled to increases.

Is it not a reasonable presumption, however, that the longer a worker has been in service the more he is worth, and that, therefore, he should be entitled to increases at fairly regular intervals as his duration of service increases? And if, as the worker's duration of service increases, he does not become entitled to higher wages, is not this a symptom of something wrong either with the worker or perhaps with his superiors?

Some firms believe that workers should be constantly developing and that failure to earn increases is a symptom of something wrong. In this belief they have established the following plan for handling wage increases:

Definite scales of wage increases are established for each class of work, for example so much increase after one month of employment, another increase at the end of three months, another at the end of six months, another at the end of one year and perhaps annual increases thereafter. Every worker is expected to earn these increases. At the end of each period in the worker's employment an inquiry is sent by the payroll department to the head of

the department in which the worker is employed, asking whether the department head recommends the advance which, according to the established scale, the worker should receive at that time. If the department head does not recommend the advance he must justify his position by a definite reason. Unless the department head gives a definite reason for denying the increase, it is granted. The cases of workers who fail to earn the regular increase are investigated by the supervisor of labor, employment manager, or service department. If the worker is unadapted to or dislikes his work a transfer may be arranged. If he has a grievance and consequently is not endeavoring to improve his work, an attempt is made to effect an adjustment. If the worker is not interested in his work, the reason for this is sought and, if possible, remedied. If the worker is simply lazy or if he does not respond to efforts to interest him in his work, he may be dropped, for it is often preferable to undergo the expense of breaking in a new man rather than to have a worker on the payroll who has ceased to develop.

A western farm implement factory has a plan whereby the hourly rate of each worker depends directly upon his speed. Each job has a value set upon it. This value divided by the time taken to complete the job, gives the value of the man per hour. The hourly rate of each man is based on his value as indicated by the average value of his hourly production over long periods. If a worker regularly completes a job rated at $3.00 in nine hours, his rate will be 33.3 cents per hour. Should he reduce this time to eight hours, his rate would be raised to 35.5 as soon as he has maintained the faster speed long enough to indicate that he has permanently attained it. Should his performance time increase over an extended period of time his hourly rate would be decreased.

This method has the advantage of eliminating the worry which the worker feels under the bonus system as to

whether he will finish the work in the time required to earn his bonus. Special conditions such as poor material, delays in crane or truck service, trouble with machinery or tools, or the worker's own physical condition may render it difficult at times for him to complete the job in the time required to earn a bonus. As the worker is anxious to obtain the bonus this is a source of worry to him and he works under a strain. This strain is eliminated under the plan of this Iowa factory, because the fact that the worker on some days is delayed in doing the job does not mean that he loses, since his hourly rate does not fluctuate with his performance from day to day but is based on his average performance over extended periods.

An interesting refinement of the bonus system is furnished by an automobile factory which, in addition to rewarding the workers by a larger bonus as they beat the standard time, also rewards those workers who earn large bonuses consistently by an increase in the hourly rate upon which the bonuses are calculated. A standard time is set for each job and the workers are paid a bonus for bettering this time. For every 5 percent bonus which a worker consistently makes over 35 percent, he is entitled to a two cent increase in his day rate. For example, if his day rate had been 40 cents per hour and he was making a bonus of 40 percent, his day rate would become 42 cents and his bonus of 40 percent would be figured on 42 cents instead of on 40 cents. The hourly rate is based on the worker's average performance so that if the worker falls below the 35 per cent bonus occasionally, his hourly rate is not reduced.

A unique and exceptionally interesting plan of payment in accordance with merit is the "credit system" of wage payments of the Chicago Motor Bus Company.[2] The wages

[2] This plan, which was originated by Mr. Harold B. Weaver, vice president of the company, is described in detail in the *Electric*

of each employee depend upon the number of credits he had at the last monthly rating. Employees are divided according to their credit rating into seven classes, as follows:

G Up to and including 150 credits.
F From 151 to and including 300 credits.
E From 301 to and including 450 credits.
D From 451 to and including 600 credits.
C From 601 to and including 900 credits.
B From 901 to and including 1,200 credits.
A From 1,201 to and including 1,500 credits.

The hourly rate of men in class F is one cent more than of the men in class G, and so on.

Three kinds of credits are awarded:

1. Regular credit for duration of service. Twenty-five credits are given each month of employment.

2. Extra credits for three consecutive months or more of perfect service. From the 4th to the 9th month, inclusive, of uninterrupted perfect service, 5 extra credits per month are given, from the 10th to 21st month inclusive, 10 credits per month, and for 22 or more consecutive months of perfect service 15 credits per month are awarded.

3. Bonus credits given for extraordinary service or exceptional efficiency.

Employees are penalized for violations of rules by deductions from their credits. No more than 50 credits may be deducted for a single offense. Employees are notified of deductions from their credits and have the right of appeal to a board appointed by the president.

Employees with ratings in excess of A participate in profits at rates determined by their duration of service and the dividend rate of the firm.

Railway Journal, v. LI, pp. 89-90. This summary of the system is based on the description in the *Electric Railway Journal*.

Another unique and interesting system of payment is used by The H. H. Franklin Manufacturing Company.[3] The aim of the plan is to set rates in accordance with an evaluation of each worker made in accordance with a selected formula. The elements taken into account are:

1. Rate of production.
2. Spoiled work or damage to equipment.
3. Years of continuous service.
4. Lateness and absences.
5. Number of major processes worker can do.
6. Monetary responsibility placed in hands of workers.
7. Coöperation and conduct.

For all of these elements standards of performance are set which yield a standard rate. Each worker is evaluated in terms of his performance as compared with the standard performance by a formula which gives various weights to deviations from the standard performance in the various elements enumerated.

2. Systematic promotion based on merit.

A number of the advantages of filling vacancies from within the force were discussed in Chapter XIV, section 4. Systematic promotion according to merit is also desirable for all of the reasons which render the payment of wages in accordance with merit desirable. Workmen are attracted by the opportunity to win promotion to better jobs by merit precisely as they are attracted by the opportunity to win advances in wages by merit.

Although the numerous resignations of workers to take advantage of better conditions elsewhere indicate that there is a widespread desire among workmen to better their condition, in most instances the workers are induced to change by the *immediate* benefits of better wages or easier

[3] For detailed description see an article by Mr. George D. Babcock on "Fixing Individual Wage Rates on Facts," *Iron Age*, v. XCVII, pp. 1375-1379.

and more agreeable work, rather than by the opportunities which the new position offers for advancement in the long run. One of the most important problems of present day management is to interest workers in the future opportunities of positions as well as their immediate attractions. Workers cannot be criticised, however, for attaching little importance to the future opportunities of jobs because under the haphazard system of promotion which prevails in most shops, no definite future opportunities are offered to men of merit. When workers can see a definite opportunity to advance by demonstrating their ability they may be expected to take greater interest in the possibilities of their jobs and not to change readily to other jobs the possibilities of which they do not know. Systematic promotion based on merit is needed to induce workmen to take a long run point of view.

There are three principal prerequisites to the successful operation of a policy of systematic promotion in accordance with merit:

The first is that the rates of pay for the various jobs be graded according to the skill and responsibility involved, with proper differentials for peculiarly severe or unpleasant jobs. In most factories rates have been set without adequate investigation. After being set some have been cut and others have not. The result is that many skilled and responsible jobs pay less than jobs requiring slight skill. It is, of course, impossible to promote men when they earn less at the more exacting than at the less skilled work.

The second prerequisite is that in so far as possible men shall be advanced along definite lines of promotion. This is desirable because:

1. If the steps of advancement are properly worked out, the men will be advanced to jobs for which by previous experience they are best fitted, and will pass through the

series of jobs which will best equip them for the most exacting and most remunerative.

2. Systematic organization of lines of promotion means that each job will have an outlet. This should be a cardinal principle in every plant—that no job should be without an outlet.

3. Regular lines of advancement enable the men to know definitely the positions they are next in line for and hence the precise nature of the opportunities before them. Men will strive harder to attain a goal which they can definitely see than an uncertain one which they cannot visualize.

The detail with which sequences of advancement can be worked out varies. Sometimes definite sequences can be worked out in which one position leads to another particular position, the second position to a particular third position, and so on. In other cases there are numerous jobs of substantially the same degree of skill and requiring substantially the same preparation. In these cases no particular job leads to any other particular one but the jobs are divided into groups, workers being promoted from one in the least skilled group to any one in the next higher group, and so on.

Public utility corporations have developed systematic lines of promotion farther and more completely perhaps than have most industries. In the footnote is given a description of the sequence of advancement worked out by a large middle western electric light and power company showing the manner in which switch board operators are developed by passing through a series of subordinate positions. The description is published privately by the company.[4]

[4] "The lowest position in the electrical division depends upon size and general layout of the individual stations, being usually that of meter statement takers, helpers on the exciter floor or inexperienced electrical mechanics. But a man's first actual operating begins

The Ford Motor Company presents a case of classification of jobs into groups. Before standardization the company paid sixty-nine different rates by no means consistent

when he becomes an exciter operator and is in charge of exciters, batteries, etc. In this position it is within his power to disturb the service rendered from the station, and it is here, therefore, that his real responsibility begins. He has charge of switching in and out of exciter generators, charging and discharging stand-by batteries, switching for main generators, fields, etc., and first works from midnight to 8:00 A.M.

"After an exciter operator has progressed from the night shift to the dayshift, passing through the afternoon watch, and is found qualified, he is promoted to the position of assistant day operator. This move brings him in contact with the senior operator, which is particularly advantageous to him. He thus secures his first gallery instruction and training from the senior operator, who, in turn, has passed through the different positions below him and is familiar with the conditions of each. Progressing from the position of day assistant operator, the man next takes the job of evening assistant, working from 4:00 P.M. to 12 P.M., and when next promoted takes the night assistant's watch.

"He, by this time, has received several months', possibly a year's, training as assistant operator and is in condition to grasp the meaning and significance of meter indications quickly and accurately, but has been permitted to do responsible operating only under the direct supervision of the regular operator. He will receive instruction and practice in all operating work during his occupation of the assistant's position, but the practice operating is permitted only with the sanction of the Watch Electrician in charge of each watch and with the direct coaching and checking of the regular operator.

"The next promotion will place the senior assistant in the position of junior operator, in the same watch as he has been working as assistant. This is done for the purpose of giving the man his last instruction as assistant on the work and load conditions that he will handle in the more responsible position of junior operator. The man works successively the night and evening watches and then takes the day watch. Satisfactory results have been obtained from this schedule.

"The position next higher than day operator is that of relief

switchboard operator, whose duty it is to furnish regular relief days once a week in the gallery as a sort of a review before going farther in the organization. He works a regular schedule covering three watches, relieving each man every eighth day, taking the eighth and last day of each cycle of relief himself. This schedule provides for any one man a relief day, one day later each week; that is, in one week he will be off duty on Sunday and in the next week off duty on Monday, and so on. The relief operator automatically tends to standardize the operating by carrying from one set of men to the others the good points and improvements in operating that develop among the men.

"When a man has progressed in the organization to the point where he has successfully discharged the duties of all switchboard positions and has finally reviewed the work for several months in the position of relief operator, he is considered capable of being in charge of all operating work and men on any one shift; this includes high tension line testing, inspection and repair work, and instructing of all subordinates. The man then becomes, when the chance occurs, the relief Watch Electrician, whose duty it is, as the title implies, to furnish relief periods for the watch electricians on three days each week, taking the fourth himself and lapping with one of the electricians or working wherever needed on the remaining days of the week. There are three regular Watch Electricians, one for each watch, who have direct charge of all electrical work in the station, repairs, etc. The remaining electrical positions are those of electrical inspector, foreman of electrical mechanics, and electrical mechanics.

"The inspector who works nights makes regular inspections of generators and their auxiliaries after each run, giving particular attention to armatures, generator oil switches, rheostats, insulation testing, etc., giving such time as he can spare from regular inspections to the inspection of pressure and control wire terminal boards, line and bus tie oil switches, batteries, auxiliary motors, etc. This inspector may be a graduate switchboard operator or a man who may have progressed to the position of watch electrician but who has wished to change from regular operating work. To be a competent inspector he must have a knowledge of mechanics and be able to direct high class repair work as well as to tell accurately what equipment is serviceable and not liable to interruptions.

"Electrical patrolmen are required in some of the larger stations for patroling the bus chambers, switch, and transformer houses,

with the skill required.[5] In 1912 standardization was introduced by dividing the force into six general groups. The groups are:[6]

A. Mechanics, subforemen.
B. Skilled operators.
C. Operators—press hands, drill press operators.
D. Helpers.
E. Laborers—non-productive.
Special, girls, messengers.

Each class of employees except E and Special has three rates which are based on output—one for beginners, one for fair production, and a third for good output. Beginners are started at the lowest rate and are expected to earn an advance in six weeks. Employees unable to progress are reported to the employment department and investigated.

The Ford Company represents standardization in a plant in which the men are largely semi-skilled. The Bullard Machine Tool Company of Bridgeport, Connecticut, is an example of classification in a plant in which the help is somewhat more skilled. Six classes were established, four of which consist of mechanics, one of apprentices, one un-

and to assist the Watch Electricians in making line tests or to help wherever special or emergency work is being done.

"The foreman of electrical mechanics has charge of all repairing of electrical equipment on the station property, such as motor drive, crane operating, maintenance of lighting systems and electric locomotors. He also makes periodic tests to determine the condition of fire alarm systems, coal conveyor and crusher, automatic stopping devices, and energy consumed by certain motor equipments."

[5] John R. Lee: "The So-Called Profit Sharing System in the Ford Plant," *Annals of the American Academy of Political and Social Science*, v. LXV, May 1916, on "Personnel and Employment Problems," p. 300.

[6] Abell: "Labor Classified on a Skill Wages Basis," *Iron Age*, v. XCVI, pp. 48-51. See also Emmet, "Profit Sharing in the United States," U. S. Bureau of Labor Statistics, *Bulletin* No. 208, p. 95.

skilled. These classes are described in somewhat indefinite terms by the company as follows:[7]

"In class AA, from which will be recruited our future shop executives and foremen, are grouped the sub-foremen and leaders in charge of the working gangs of mechanics. The maximum wage rate is limited only by ability and occupation, while a high minimum of 55c per hour has been set.

"Class A, composed of the mechanics of the highest skill, forms the basis of promotion to Class AA and like it has an unlimited maximum hourly rate dependent only on ability, and a minimum rate of 50c an hour.

"Mechanics of good average ability are rated in Class B for which a wage of 45c an hour has been set. Advancement in rate will be the logical reward of true merit and diligent service.

"In Class C have been grouped those mechanics of less skill but whose work shows merit and possibility of development which will warrant advancement to the highest class. The hourly rate is 40c.

"All apprentices, both special and regular, are put in Class D, and when their term expires, promotion will be promptly made to the class for which they have qualified. The apprenticeship rates are advanced approximately 10 percent.

"The non-productive skilled labor and the unskilled labor, such as truckers, cleaners, sweepers, etc., have been grouped in Class E which has a minimum rate of 25c an hour and a maximum rate which is limited only by occupation and skill and proficiency therein. In recruiting this force, preference will be shown to those who can speak and write the English language and who show possibilities of advancement and development.

"To the unskilled there is offered the opportunity to

[7] *Iron Age*, v. XCVII, p. 1274.

acquire skill with regular or apprenticeship courses. Our aim and hope is to have a mechanical organization composed mainly of AA and A men, with B, C, and D men in sufficient numbers only to provide for natural growth and expansion and to make up the small losses that are bound to occur in any large organization."

A manufacturer of bags, boxes and paper novelties uses a group gradation system, with three classifications, A positions, B positions and C positions. Several years ago the scale was: C positions, less than $13.50 per week, B positions, from $13.50 to $16.50 per week, A positions, over $16.50 per week. The employment manager states the plan has worked very satisfactorily.

A middle western clothing manufacturer has divided all operations into 5 grades according to the skill required. There are 3 divisions of work within each of which promotion occurs: hand sewing, machine sewing and pressing. The workers are advanced within each of the 3 divisions from the lowest grade of operations through the intermediate grades to the fifth and highest grade.

The third essential to the success of a system of promotion based on merit is the certainty that promotions will actually be made in accordance with merit and not in accordance with the foreman's more or less indefinite impressions as to who is entitled to promotion. This is made possible by individual records of efficiency and character which are discussed in the next section.

3. **Records of efficiency and character.**

Records of individual efficiency and character are valuable not only in preventing meritorious workers from being overlooked when wage increases are granted and promotions are made, but also as an indication of workers who need help and instruction and as a check upon the efficiency of the employment department since they indicate how closely workers' traits correspond with those which the

employment department attributed to them when it hired them. When workers contemplate resigning, the records indicate how much effort is worth while to hold them. Finally the records tend to prevent unjust discharge by foremen since the management is not inclined to permit workers with good records to be discharged without careful investigation.

The following descriptions of rating systems and efficiency records illustrate typical systems for rating efficiency.

The Government Armory at Springfield, Massachusetts, has a system which applies to all men in the plant up to and including the assistant foremen. The ratings are made by a board consisting of the officer in charge, the assistant officer, general foreman, assistant foreman in charge of the workman's department, and the chief inspector. They are adjusted every six months and form the basis for promotion and for lay-offs when reductions in force are made. The qualities upon which men are rated and the weights attached to each are:

Attendance, 1.
Application, 1.
Habits, 2.
Adaptability, 2.
Ability, 4.

Piece work earnings or other output records test adaptability and ability.[8] Noteworthy is the method of rating "application" and "habits." Men are given full credit for these qualities unless reason for contrary action exists. The fact that there is little evidence on which to rate workers' habits renders it desirable to rate all men alike except where definite reasons for doing otherwise exist. There is no lack of evidence, however, of the application

[8] *Iron Age*, v. XCI, p. 812.

of the workers, and to give all workers a perfect rating on this point unless evidence is known detracting from the perfect rating would seem to be an injustice to those of exceptional application who far surpass others of merely satisfactory application.

An eastern printing and binding establishment secures a report four times a year for five years on the following points:

Discipline
Efficiency
Hours employed
Hours out on own time
Bonus hours
Total earnings

Space is left for notation of tardiness, information in regard to personal affairs, and general information affecting work. Efficiency is measured by the proportion of the bonus hours to the total hours worked.

This information is entered on the back of a sheet which contains the employment record of the worker, both previous to and during employment by the firm. It contains the usual information such as age, nationality, number of dependents, education, health, general habits, previous employment including duration, earnings, reasons for leaving, work done in employ of this company, date hired, rate, dates of transfers, leaving, and reasons for transfer or leaving. The part of the form relating to efficiency is shown in Form D on page 365.

Form E shows the record kept by a button manufacturer. The information is secured quarterly for several years. After a worker has been employed several years the firm does not consider it necessary to continue the record as important changes in the ratings of the worker after this are not considered probable.

(By 13 week periods)	1st year			2nd year			3rd year			4th year			5th year		
DATE															
% DISCIPLINE															
EFFICIENCY															
REPORT GIVEN BY															
HOURS EMPLOYED															
HOURS OUT ON OWN TIME															
BONUS HOURS															
TOTAL EARNINGS															
TOTAL EARNINGS															

DATE	RECORD To include tardiness, personal affairs and all general information affecting work	

(Form D)

A desirable feature of the plan used by this firm is that the information is collected by a representative of the employment department by questioning the foreman. More careful answers are likely to be obtained from the foreman by this method than when the foreman is left to fill out the blank himself.

The employment manager of a manufacturer of office furniture and filing apparatus has devised a plan which was about to be put into effect at the time of my interview whereby employees will be graded at the end of the first month and third months and of the first year according

EMPLOYEE'S RECORD

NAME CLOCK NO.

Date of report	Foreman	Healthy	Steady	Quick	Satisfied	Industrious	Teachable	Obedient	Forceful	Memory	Orderly	Mech. Abl.	Dept.			
													Work			
													D.W.–P.W.			

(Form E)

NAME

Year	Quar.	Ave. Earn. per 54 hours	Total Hrs. in Quar.	% Total Hrs. Wkd.	L	F	A	Remarks

(Form E, reverse)

L signifies "late"
F signifies "failure to register."
A signifies "absence."

to dependability, intelligence, industriousness, neatness, cheerfulness, and activity. The employment manager rates the men on these qualities at the time of hiring so that the subsequent ratings check the accuracy of the employment man's judgment. It is planned to have the foremen report their rating on special blanks sent to them for the purpose and to have the results entered on the permanent record in the employment office.

This firm furnishes another example of the rather infrequent but advantageous practice of having the entire record of the employee except that needed by the payroll department upon one blank. The reverse of the sheet used for the employment record is the application for employment on which are entered the facts desired concerning the worker and his industrial history. The form also provides for an estimate of the worker on leaving so it can be transferred to the dead file for reference in case he applies for reëmployment.

Form F is a facsimile of the form.

An eastern manufacturing company uses the following marking system which is restricted to apprentices. Every three months the foreman with the aid of the assistant foreman grades the apprentices on each of the following qualities:

Mechanical ability
Application
Progress
Ambition
Initiative
Steadiness
Quality
Attitude (or conduct)

A mark of A indicates 100 points, perfect; B, very good (90 to 99 points); C, good (80 to 89 points); D, fair (70 to 79 points),

EMPLOYMENT RECORD

ENGAGED FOR..... DEPT ..... KIND OF WORK.....

DATE STARTED..... 19..... WAGES PER HOUR.....

REFERENCES.....

Efficiency rating at time of employment				Department rating at end of									REMARKS
				First month			Third month			Year			
	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	
Dependability													
Intelligence													
Industriousness													
Neatness													
Cheerfulness													
Activity													
Strength													
Texture	Fine	Med.	Coarse										

TRANSFERRED TO:

DEPT..... DATE..... DEPT..... DATE..... DEPT..... DATE.....

LAID OFF..... DISCHARGED..... QUIT..... REASON.....

DATE..... WORKMANSHIP: GOOD.....FAIR.....POOR..... CONDUCT: GOOD.....FAIR.....POOR.....

REMARKS.....

REËMPLOYED:

DATE..... DEPT..... DATE..... DEPT.....

(Form F)

An elaborate effort to obtain information concerning the character of workmen is made by a western shoe manufacturer. Form G shows the nature of the report. This report is sent to the employment supervisor by the foreman every six months.

REPORT ON EMPLOYEE

OFFICE.....FACTORY.....DATE.....
Name.....No.....
Department.....Position.....

Please check each of the following that the employee may possess, so we can keep a record of the same for future reference.

Employment Supervisor.

Is this Employee

Careful.....Careless.....
Punctual.....Tardy.....
Accurate.....Inaccurate.....
Industrious.....Lazy.....
Has he a good memory?....Forgetful.....
Orderly.....Disorderly.....
Patient.....Impatient.....
An abstainer .....Drinker.....
Dependable.....Undependable.....
Quick.....Slow.....
Teachable.....Healthy.....
Adaptable.....Good disposition.....
Has he character?..... { Reliability..... / Honesty..... }
How is his discipline?.....
Do you ever have to rebuke him?.....
What for?.....
Has he good or bad influence
over the other employees?.....
Does he show special interest in the work?.....
Sign and return.....
Signature.....

(Form G)

A remarkable attempt at character analysis has been made by a firm which proposes to appraise men's character on a scale of 100. The firm has drawn up a list of 20 characteristics which it considers should form the basis of the appraisal. To each of these it has assigned the number of points out of a possible 100 which it believes represent the relative importance of the characteristic. For each characteristic the worker is given the number of points out of the total number of points assigned to represent the importance of the characteristic which he is considered to deserve. The sum of the points assigned to the man is the estimate of his character on the scale of 100! An estimate is made of the amount of each characteristic required by the particular job in question and a comparison with the rating given the worker on each determines whether he possesses the requisite amount.[9]

[9] As this method is in an experimental stage the firm makes no claims concerning its value. The objections to it are rather too obvious to require comment. There is first of all the practical difficulty—the lack of means to measure human characteristics and the consequent subjective nature of all conclusions. The most fundamental objection appears to be that it is impossible to weigh the various human characteristics by their total importance. A certain amount of many qualities may be absolutely essential to fit a man for the work. If the various characteristics are assigned a weight in accordance with their total importance, many would be reckoned of infinite importance. Finally, it is impossible satisfactorily to rate men on a scale in which 100 represents perfection when no one knows what perfection is.

A rating system sound in principle, instead of endeavoring to measure men on a scale in which 100 represented some more or less indefinite ideal, would measure men by their deviation from the normal. A weight would be assigned to the various characteristics not on the basis of their total importance but on the basis of their relative scarcity, the less scarce characteristics receiving low weights even though in certain quantities they are absolutely indispensable. The workers would be assigned points above or

One of the best means of discovering workers meriting promotion or advancement in wages is through the instruction department. It is the purpose of instruction departments to train old employees for promotion as well as to break in new workers. Classes are held after business hours for those desiring to fit themselves for better positions. As attendance is voluntary these classes naturally consist of the most ambitious workers who usually are also the most intelligent and the most competent.

4. Improving the handling of men by foremen and gang bosses.

The foremen and gang bosses are the most important means by which workmen come in contact with the management—they *are* the management to the workmen in most matters. Every factory executive has heard the expression used by workmen: "So and so is a good man to work for." He knows what it means from the standpoint of satisfied workmen and absence of friction between the men and the boss when a foreman acquires such a reputation. In view of the well recognized importance of the methods used by minor executives in handling men in their effect upon the relations between men and management, it is surprising that

below the weight given the characteristic in accordance with whether they were believed to possess more or less than what is conceived to be about the normal amount possessed by men in general. Under this system about half the workers would receive ratings of over 100 and about half of less than 100.

In the application of such a system it would undoubtedly be better, instead of attempting to rate all men by one norm, to set up different norms for different classes of men, such as one norm for common laborers, another for semi-skilled workers, another for skilled workers.

A fundamental objection to all numerical rating of qualities which cannot be exactly measured is that the figures create an impression of false accuracy and lead even to the self-delusion of the person who makes the estimate concerning the accuracy of his estimates.

so little systematic effort has been made to improve the methods of minor executives in handling men.

Statistical data on the influence of the foreman upon the turnover are difficult to obtain because it is difficult to find two departments in which the work, wages, and working conditions are the same. A piano manufacturer has two shops each making the same product, paying the identical wage scale and located in the same section of the city. The hiring for each is done at a central office. In June 1916 one shop with a force of 220 lost 38, the other with a force of 145 lost 36, turnover rates for the month of 17.3 percent and 24.8 percent respectively. These figures being only for a single month would be of no significance, except that the employment manager says they are typical of a difference which prevails constantly. This difference he attributes to the foremen. The foreman of the second shop is a Swede who, in the employment manager's words, "thinks his men are dirt."

In a plant making an automobile accessory there are two groups of drill press operatives each doing precisely the same work and paid precisely the same piece rates. They are located opposite each other on either side of a large room. There are about 18 operatives in each group, mainly young men 18 to 21 years of age. One group is under a middle-aged man, a good foreman but possessing no particular qualities to win the esteem of his men. The other group is under a young man of about 25, of genial magnetic personality, an expert ball pitcher and all around athlete. He is idolized by the young men in his gang. The losses in the group of the older foreman, according to the employment manager, average about 9 or 10 men per year, in the gang of the younger foreman 3 or 4 per year. The employment manager attributes the difference entirely to the difference in the foremen.

It is futile to expect substantial results from improve-

ments in the methods of foremen and gang bosses in handling men until generous consideration has been granted the workers' interests in the matters of wages, hours, and physical conditions of work. Considerate treatment of workers will evoke no response from them as long as behind this outward kindliness and consideration the management seeks to drive hard bargains with respect to wages and hours. The more the problems of management are studied, the more apparent it becomes that their solution rests not upon the application of superficial remedies affecting only the less important interests of the workers but upon the introduction of drastic reforms in matters of vital consequence to the workers.

It is useless also to attempt to improve the methods of foremen and gang bosses in handling men as long as the "drive" policy of management prevails in the shop. The "drive" system requires that the workers be cowed and made to fear the management. Considerate treatment of the men and good feeling between the men and the management are incompatible with the very essentials of the "drive" system.

The improvement of the methods of handling men by minor executives assumes, therefore, two things: (1) that a high wage and short hour policy is profitable; (2) that the "drive" system is unprofitable. If the employer determines his labor policy upon financial considerations alone, and if he decides that a low wage, long hour and "drive" policy is the more profitable, he is not interested in reforming the methods of his minor executives.

The most important single step in the improvement of the methods of handling men by foremen and gang bosses is not the instruction of the foremen and gang bosses in specific methods of handling men, but the thorough impressing of foremen and gang bosses with the fact that fairness and liberality with the men is the definite policy

of the firm and that it is the duty of the minor executives to carry out this policy. Foremen and gang bosses stand ready as a rule to give what is wanted of them. The reason why coercive "drive" methods have prevailed in the past has been that the central management has been indifferent to the methods pursued by foremen in handling men but has insisted rigidly upon a constantly increasing output and constantly decreasing costs. A slight decrease in output or increase in costs caused the foreman to hear immediately and forcibly from the central management. Under these conditions "drive" methods were practically inevitable, for although a liberal policy may be more profitable in the long run, it does not produce the immediate results required of the foremen. When foremen and gang bosses understand that fairness and liberality in dealing with their men is just as emphatically demanded by the central management as are large output and low costs and that failure to treat men with consideration and liberality will be just as severely dealt with as failure to maintain output and hold down costs, foremen and gang bosses will be as assiduous in improving their methods of handling men as they now are in increasing output and cutting costs. The secret of success in putting into effect a liberal labor policy is in emphatically impressing upon the minor executives that liberality is *wanted*. When subordinate executives understand this, their methods of handling men will in a large measure take care of themselves.

To assure that the policy established by the management is being carried out and to bring violations of the policy to the attention of the management, it is desirable to provide checks upon the methods of foremen in handling men. Among these checks are the following:

1. The reason for every resignation should be ascertained in so far as possible by the employment office. In order to give the employment manager an opportunity to inter-

view the workers who leave, an order from the employment office should be required to authorize the paymaster to pay off each worker.

2. The authority of foremen to discharge workers should be limited. Many a discharge is due not to undesirable characteristics of the worker but to the fact that the foreman does not understand how to get along with him. The peculiar personality of the worker or of the foreman or some past misunderstanding between them may create an antipathy between them which renders it difficult for them to get on together. Under another foreman the workman might get along very well. Often the cause for the discharge is something which angers the foreman. The workman by his mistakes may have put the foreman to great inconvenience and trouble. An angry man, however, is an unfit person to decide a question of discharge. He is not a neutral party and in a large percentage of cases his decision will be unjust. It is not unusual for a foreman to report to the labor bureau a man discharged as "no good," and, a short time after, request that the man be rehired. When told that he reported the worker to have been unsatisfactory he often answers that he did so in anger. Finally, the discharge of a worker is of sufficient importance to warrant careful and deliberate consideration by some one not directly involved in the matter and of greater responsibility and better judgment than the average foreman. One would not think of scrapping machinery as thoughtlessly and heedlessly as many men are discharged.

In some plants the authority of the foreman is limited to the power to dismiss from his department. In such cases authority to discharge from the company's service usually is in the employment man or supervisor of labor. In a company manufacturing rubber goods authority to discharge depends upon the duration of the worker's service. Foremen may discharge workers employed less than one

year. The discharge of workers employed from one to three years must be approved by the general foreman of the departments, the discharge of those employed from three to five years by the member of the Factory Council in charge of the department in which the man works, and the discharge of workers employed five years or more must be approved by the factory manager or in his absence by the acting factory manager.

Restricting the foreman's authority to the right to dismiss from his department gives the employment department or supervisor of labor the opportunity to prevent men unjustly or unwisely dismissed from leaving the employ of the firm. It fails, however, adequately to prevent unjust dismissals from the department and still less to check the use of tactless, careless methods of handling men by the foremen, which develop friction between them and the foremen. The friction in turn leads to occurrences such as an angry workman's telling the foreman to go to hell, in which dismissal is necessary but which would have been avoided had the worker been properly handled. In order to check tactless and careless handling of men and unjust dismissals it is desirable to deprive the foreman of authority even to dismiss from his department without the approval of the division superintendent, supervisor of labor or general manager. It is a pernicious idea, a relic of the "drive" system under which the foreman needed to command the fear of the workmen, that the absolute right to dismiss from the department is necessary to enable the foreman to "maintain discipline." When a foreman knows that by dismissal he can get rid of any workman with whom he experiences difficulty and that no questions will be asked, he is likely to take no special pains to get along with men who must be handled carefully. If he understands that dismissals are looked upon with disfavor by the management and that he must obtain approval from a superior for each

dismissal he will be more likely to go out of his way to get along with men. The familiar principle applies here that irresponsibility breeds arbitrary action and that responsibility fosters fair action. An eastern printing and bindery establishment has taken from the group supervisors the right to dismiss workers from their groups.

In checking the justice of the foreman's dismissals the labor supervisor or other official whose approval is necessary, has the aid of the individual efficiency record of the worker, such as those described in the preceding section. In this is entered the foreman's estimate of the worker's character and efficiency. If the foreman has been consistently rating a worker as industrious, obedient, and loyal, and if his efficiency is good, a very convincing explanation will be necessary to secure approval of the worker's dismissal.

3. Reports on the size and causes of the turnover should be sent by the employment department to the general manager, labor supervisor, or president at least once a month. These reports should show the number of resignations, layoffs and discharges by departments, classified according to the duration of employment and the total number of resignations and discharges in the entire plant due to specific causes.

In a western shoe factory the reasons for the turnover are considered at the weekly meetings of the factory staff along with the other usual matters for consideration such as factory conditions, costs and production. The factory staff consists of the general manager, the superintendent (in charge of mechanical conditions, up-keep and repairs), the head of the efficiency department, the office manager, the store keeper, the production manager, and the employment manager.

4. Grievance systems. The opportunity of workmen to have an adequate hearing of their grievances checks the

use of arbitrary methods by foremen. This subject is discussed in the next section.

In addition to establishing the fair and liberal treatment of the men as the definite policy of the business and of creating checks to see that this policy is observed, there are a number of miscellaneous means of improving the methods of foremen in handling men. Among these are:

1. Example.
2. More careful selection of foremen.
3. Education of foremen.

1. Example.

The foremen should be treated by the manager or superintendent in the same manner in which the foreman is expected to treat his men. Fair treatment of foremen by managers and superintendents does not, of course, assure that the workmen will be treated likewise by the foremen, but it tends to show the foremen the spirit and attitude which the management desires to prevail in the organization and thus tends to develop this spirit in them. Moreover, a foreman who is bullied and brow-beaten by those above him is unlikely to be in a state of mind to act fairly toward his men. As every business man well knows, nothing is more natural than for an angry executive to vent his anger on his subordinates. Every business man knows of organizations in which a chief executive, who gives way to sharp and violent criticisms of his subordinates, periodically throws the entire organization into a state of anger and antagonism because the anger of the chief executive is passed on from one subordinate to another until it is vented on the ordinary workmen.

A characteristic of the "drive" system of management is that the foremen as well as the workers are driven, so that the foremen in driving their men are simply passing on something which they have received from their superiors.

2. Selection of foremen.

The type of man required to make a good foreman when the policy is to obtain the coöperation of the men is radically different from the type required when the policy is to drive them. The selection of a different type of men for foremen in itself does much to alter the methods of handling men.

3. Instruction of foremen.

Considering the responsibility of their position and the possibilities which they possess for doing good or harm, it is surprising how little instruction foremen receive in the duties of their task.

The most advantageous time to instruct men in the duties of foremanship is *before* they have become foremen, when they are open-minded and willing to learn and when there is no danger of their taking as an affront the effort to instruct them. No establishment with a training department should permit any one to become a foreman or gang boss who has not undergone thorough training for the task. A company manufacturing rubber goods mentioned above,[10] periodically selects a group of 50 men to whom it gives a three years' course which besides training them to perform every operation in the plant, includes English, arithmetic, economics, mechanical drawing, organization and management and rubber manufacturing practice.[11] The purpose of the course is to train men to be foremen. The company writes: "We consider the system invaluable."[12] A manufacturer of electrical apparatus has a similar plan on a smaller scale. Groups of 6 to 8 boys, 18 to 21 years old, recommended by their foremen, are given a practical and theoretical course of two years in preparation for minor executive positions.

So important is it that minor executives be thor-

[10] *See above,* p. 274.
[11] Letter to the writer.
[12] *Ibid.*

oughly competent, that one may safely predict that in the near future elaborate and rigorous training courses will exist for prospective minor executives in all large establishments, and that no one will be permitted to become a foreman or gang boss without first having been thoroughly trained for the duties of the position.

Methods of instructing those who are already foremen are:

(1) Lectures by a superior executive or executives on managerial problems. This plan was followed by the works manager of a Detroit automobile factory who every two weeks for five months gave a lecture on managerial problems lasting an hour and fifteen minutes. The plan was such a success that continuance of the lectures was planned for the next year. Some lectures were illustrated with slides.

(2) Round table discussions. This is a common method which is highly successful. An advantage of it is that it consists of an informal discussion of problems, an exchange of ideas and experience, so that although the foremen are learning, *they do not feel they are being taught.* This is an important advantage for foremen take great pride in their practical knowledge, have a great contempt for formal instruction and do not take kindly to being taught. The efficiency director of an eastern company who gave a course of instruction to foremen using the round table method of informal discussions describes his experience as follows:[13]

"It is very difficult to pin the course of study to a well defined program with foremen who are a very independent set of men and fully realize how important they are to a business.

"They regard themselves as the experts of the establishment and one must make their gatherings more like committees for consultation rather than classes for instruction.

[13] Letter to the writer.

"In 1915 when we began more careful work with our foremen our business was passing through a depression and it was not difficult to get them together on company time. I took up a number of subjects with them, leading the discussion. Then I secured a number of speakers from outside, superintendents or practical men from other industries."

The subjects covered in the course included:

1. Employment.
2. Discipline.
3. Planning.
4. Safety.
5. Hygiene.
6. Steel.
7. Inspection.
8. Machines.
9. Operations.

A further advantage of the round table plan is that each foreman is expected to contribute as well as to receive ideas. Frequently he learns more in thinking up ideas to contribute than from what others say.

(3) Study classes for foremen and other executives. This also is a common method. A description of the plan followed by the Dennison Manufacturing Company is given by Mr. C. E. Shaw of that company in the *Bulletin* of the National Association of Corporation schools.[14] The Alexander Hamilton Institute course was used as the basis of study. Groups of six men were formed, so far as possible no two of any group from the same field of factory work. Definite reading assignments were made. Each man made notes of items he wished discussed. The groups met once a week directly after closing time. A lunch was served followed by a discussion for several hours. In his article

[14] December, 1915, p. 15.

Mr. Shaw stated there were five groups with a prospect of three more.

(4) Individual criticism, in personal conferences, of the methods used by foremen in handling help. This method has been used by the Packard Motor Car Co. with success. The following account of the method used is given by Mr. J. H. Weller of the Packard Company:[15]

"The educational work consists of a series of personal talks with the men. This work is carried on by our Supervisor of Labor, who devotes all his time to welfare and educational work, and who is endowed with full authority to handle the labor situation and the educational work for the best interests of all concerned, and it is his duty to study each man individually. All his good traits and habits, as well as his faults and weaknesses are carefully noted. He is invited into a private room where one hour is spent in talking over the subject of departmental supervision. During the course of these talks reference is made in a very friendly but candid manner to all his failings, and suggestions are made which are helpful to him in correcting them. He is given very explicit instructions as to the proper method of handling his help; how to develop the unskilled into skilled, expert, and efficient workmen; how to get them interested in their own future welfare as well as that of the company; how to develop loyalty and make each man in his department feel that he is an important factor in our institution, and that the company has a personal interest in him; how he should meet and instruct new men coming into his department and make them feel at ease and at home—tell them what he proposes to do for them, and what he expects them to do for him. His attention is called to the folly of simply giving them a job and then leaving them to work out their own salvation, with

[15] *Proceedings of the National Association of Corporation Schools*, 1914, pp. 346, 347.

the little help they may be able to get from the workmen around them.

"Their attention is called to the importance of keeping efficient men in their departments for long periods of time; that their department must positively be such at all times that their men will respect them, that is, they must be sober, truthful, honest, busy, and above all punctual; that they must be the first man in the department in the morning, and the last one out in the evening; that they positively must keep faith with their workmen, and keep every promise made to them; that they cannot abuse them, or swear at them, and when it is necessary to correct them, to call them to one side and talk to them with all kindness but with candor; that if they will not respond to that kind of treatment they should dismiss them, but in doing so, they should do it privately, give every man a reason for doing so firmly but briefly; they are told that our company's policy is to retain competent and loyal men, and that sufficient evidence of prejudice or bad temper against loyal workmen will be considered just cause for their dismissal and it is especially urged upon them as one of their most important duties to train themselves to be affable, honest, straightforward, earnest, calm and always ready to assist and advise their men, both as to their duties and their personal welfare."

After the talk the foremen were observed for sixty days. At the end of that time they were called into the office and the matter gone over again to see what they had accomplished and in what they had failed.

The main factor in the success of this work probably was the spirit in which it was undertaken, which was to make the criticism *constructive* rather than destructive, to cause the foreman to feel an effort was being made to *help* him rather than to find fault with him. The cardinal principle may be laid down that in endeavoring to change the methods

of foremen little will be accomplished by a fault-finding attitude except to arouse the anger and combative instinct of foremen. Their coöperation can be won only by convincing them that an effort is being made to assist them in their work.

The supervisor of labor[16] should be continuously carrying on informal advisory work to improve the methods used by minor executives in handling men. The supervisor of labor should so command the confidence of the foremen that they will voluntarily seek his advice concerning their more important problems of handling men. As the labor supervisor of a Detroit plant says, "You can tell a man twice as much when he comes to you for advice as when you call him in to criticise him."

The foremen of the future will be very different from the foremen of the present. A different type of men will be selected—less of pure drivers but men who combine diplomacy and a broad understanding of human nature with the faculty of getting things done. The character of foremen is also largely determined by the traditions and ideals of the organization. The traditions and ideals of the business organizations of the future will be decidedly more liberal than those of business organizations of the present. The future foremen's attitude and point of view will also be molded by definite training received before they assume their duties. Finally, the foremen will owe their promotion in large measure to the supervisor of labor and will be assisted by him in learning the ropes during their first weeks on the job. Consequently they will be much more amenable than are foremen of the present to advice and criticism from the labor supervisor.

In connection with the problem of improving the methods of foremen in handling men should be mentioned the effect

[16] See next chapter for a description of the duties of the supervisor of labor.

of better methods of planning and routing work upon the foremen's handling of men. The nervous strain which is imposed upon foremen by the planning and routing of work in itself complicates the problem of securing good relations between them and their men. The imperfectly planned schedules made by the foremen are bound to break down from time to time. Then arises the problem in spite of the miscalculations of the foreman of getting out the order or required output on schedule time. The maintenance of schedules is placed ahead of the convenience of the men. The foreman endeavors to force or induce workers to speed up. Overtime becomes necessary. The strain and pressure of the situation are ideally adapted to produce discord, friction, and misunderstandings. In so far as the careful planning, routing and scheduling of work by a planning department prevent such situations and in so far as they relieve the daily strain under which the foremen work, they contribute to the establishment of better methods of handling men.

5. Provision of adequate means of handling grievances.

The importance of willingness to adjust all reasonable complaints as a means of maintaining and increasing good will has long been realized by sales departments and this willingness is frequently exploited prominently as a matter of advertising. Some firms go so far as to decree that the customer is always right. The good will of workmen is scarcely less valuable than the good will of customers and if a liberal attitude toward complaints is profitable in dealing with customers, it should be profitable also in dealing with laborers.

The problem of adequately handling grievances is not primarily a problem of providing an organization to adjust grievances, for the organization required is simple, but a problem of convincing the workmen that they will receive

a fair hearing and an honest decision and that they will not be prejudiced in the eyes of the management nor suffer discrimination because they voice their complaints. Under the "drive" system of management it is the policy of both central management and foremen to discourage the presentation of grievances. As was pointed out above, the management fears that liberality in hearing complaints would give the workmen exaggerated notions of their rights and the management desires to keep the workers' minds off the subject of rights. The autocratic point of view which prevails under the system even frequently causes the making of complaints by workmen to be regarded as presumptuous, as meddling in something which is none of their business. If workers do not like or approve of conditions, the proper thing for them to do is to go elsewhere. The notion also prevails that the maintenance of discipline requires that the central management support the decision of the foreman on appeal right or wrong. The foremen's feeling of independence and of their right to rule their own departments also cause them to consider the overruling of their decisions as an affront and a worker who procures an overruling is likely to suffer gross discrimination at the hands of the foreman. The result has been to create a strong tradition among workers that complaints are unwelcome, that workers who make complaints instead of obtaining satisfaction are likely "to get in bad." The traditions of the "drive" system are the greatest obstacle to the successful operation of a grievance system.

The lack of confidence of the men in the willingness of the management to give a fair hearing to complaints can be overcome only by the workers' finding by experience that the management intends to do the fair thing. This can be made more evident to them in the following ways.

1. If the management in its every day dealings with the

men displays a liberal, broad minded attitude, the men gradually develop confidence that the fundamental policy of the management is liberalism and become more willing to voice their complaints.

2. Confidence is in a large degree a personal matter. One man may be highly successful in commanding the confidence of workers, another with equally honest intentions may completely fail. The selection of the person or persons who are to have charge of the adjustment of grievances is far more important than the form of the organization for handling disputes.

3. In order to indicate in a definite and conspicuous way that appeals from unsatisfactory decisions of foremen are welcome, some officials set aside a definite time, a portion of the morning or afternoon of certain days of the week as a regular time for men with complaints to appear before them. This is the practice of the superintendent of transportation of an eastern street railway company, who sets aside the afternoon of one day each week for the hearing of workers' grievances.[17]

4. In some shops, in order to win the confidence of the men in the grievance system, grievances are decided by a committee upon which the workers and management are equally represented. This tends to foster the confidence of the workmen in three ways. In the first place, the fact that representatives of the workers have a voice in deciding complaints tends to give workers confidence in the justice of the decisions, providing the workers are permitted freely to choose their own representatives and providing no attempt is made to coerce the workers' representatives in their decisions. In the second place the very fact that the management allows elected representatives of the workers a voice in deciding grievances is an indication to the workmen of the honesty of the management's intentions. In the

[17] See above, p. 231.

third place the workers' representatives on the committee affect the decisions of the committee because they bring about a more effective presentation of the workmen's point of view. Even though the management desires sincerely to settle grievances with perfect equity, its inability to see matters from the workmen's standpoint prevents due weight being given to their interests. By remedying this defect workmen's representatives on the committee raise the equity of the decisions. This in itself tends to develop the workmen's confidence in the grievance system.

Joint committees possess several additional advantages of importance. One of the most important is that the workers' representatives on the committee act as confidants and counselors of the workers. Workers who are too timid to present grievances to the foremen or to the committee may be willing to tell them to their representative on the committee who in turn will take up the matter informally with the foreman and if necessary with the committee or higher officials. The workers' representatives greatly reduce the labor of handling grievances. Having more standing with the foremen than the ordinary workers and being able to present cases more effectively, the committee members obtain adjustments from the foremen which ordinary workers could not obtain, thereby obviating the necessity of appeals to the committee. Being familiar with the precedents established by previous settlements and knowing something of the company's point of view, the workers' representatives know fairly definitely in what cases the worker has a chance of obtaining redress and in what cases redress is hopeless. Because of their influence with the workers the representatives are able to dissuade them from presenting many foolish grievances and grievances for which there is no hope of redress.

One of the chief obstacles to the settlement of grievances is difficulty in obtaining accurate knowledge of the facts.

Because the workers' representatives enjoy the confidence of the workers to a greater degree than officials of the company, they are especially useful in gathering facts. Another difficulty arises from the inability of many workers to present their cases clearly and effectively. By acting as spokesmen for the workers the workers' representatives can give the committee a far clearer and more convincing statement of the grievance than the complainant himself, both saving the time of the committee and often no doubt preventing the miscarriage of justice.

Apart from their value in adjusting grievances joint committees are valuable because, by bringing officials and workers together frequently on intimate terms, they promote better understanding between the leaders among the workers and officials. It cannot be too emphatically stressed how much the inherent differences of interest between workers and employers are magnified into bitter antagonism and extreme distrust because of lack of close contact.

One of the most difficult and important problems in the operation of a grievance system is how to prevent discrimination on the part of the foremen against workmen who appeal from the foremen's decisions. The very system of handling grievances in itself protects in a measure, since it gives workers a means of redress against gross and easily demonstrable discrimination. It does not, however, protect workers against gross discriminations which are not self-evident (such as underrating of workers if an individual merit rating system exists), and against petty discriminations which individually are too slight to constitute cause for complaint but which collectively may be serious. These can be guarded against only by educating the foremen to see the purpose and importance of the grievance system and the necessity of their coöperation to render it successful. Foremen should have clearly explained to

them the purpose and theory underlying a liberal grievance system, the importance of its success from the practical business standpoint and the dependence of its success upon their coöperation. When foremen clearly understand the purpose of the grievance system and the reason why their coöperation is necessary, they are likely to be willing to coöperate. The reason for and importance of a liberal policy in dealing with grievances should be thoroughly explained to workers who are being trained to become foremen.

Foremen trained under the coöperative system of management will respond much more readily to such education than foremen trained under the "drive" system. The keen resentment which foremen trained under the "drive" system are so likely to feel at having their decisions in regard to workers' grievances overruled is due less to an inherent natural dislike at being reversed than to the traditions which prevail under the "drive" system that it is out of place for workmen to present grievances at all and the thought that the foreman is supreme in his little domain. Under traditions which instil in the foremen less pretentious notions of their authority and more liberal notions of workmen's rights, foremen will less resent the overruling of their decisions, and the danger of their discriminating against the workers who appeal will be consequently less.

The organization for handling grievances need not be elaborate. The essential feature is that there must be a source of appeal from the decisions of the foreman, for the foreman is often a party to the dispute and hence not in a position to render an impartial decision. If there is a supervisor of labor in the organization he is the natural court of appeal. The supervisor of labor, if he has the authority which is logically his, has authority in all matters involving primarily personal relations. He is a specialist

in the handling of men and he should possess better than any other official the tact, insight into human nature, and knowledge of the workmen's point of view which a grievance adjuster must have.

When complaints relate to operating methods such as rate limits, defective materials, tools or machinery, delay in obtaining materials, inadequate crane service, etc., or when their adjustment requires changes in manufacturing processes or in equipment, the labor supervisor cannot render an authoritative decision, for matters are involved which fall within the sphere of other officials. Even in matters concerning which the supervisor of labor cannot render authoritative decisions, the workmen should have the right to appeal to the labor supervisor because officials in the mechanical or production departments, who are primarily interested in mechanical or production aspects of the question and see it from that point of view, are likely not to give due consideration to the human elements involved. The supervisor of labor who better appreciates the worker's point of view will give more weight in arriving at a decision to the human element. He can present the worker's point of view far more effectively and with greater prestige than can the worker. It should be the duty of the supervisor of labor on appeal of workers in these cases to ascertain the facts, decide in his opinion what should be done, and seek the approval of the proper authorities for his recommendations. In important cases in which he is unable to obtain a satisfactory adjustment from the production or mechanical departments, he should take up the matter on behalf of the workers with higher authorities.

Several examples of more elaborate organizations for adjusting grievances are worth noting. The following is a description of the committee plan of a manufacturer of electrical machinery. There is no union in the plant. The

committee was established after a short strike because it was believed to be good policy to provide means for airing complaints. The success of the committee apparently is largely due to the chairman, an assistant general superintendent, a man of liberal ideas and possessing a good understanding of the workmen's point of view, who brought about the establishment of the committee in face of strong skepticism on the part of other executives.

The committee consists of twelve members, six representing the company and six representing the men. The original committee consisted of six members, three from the men and three from the company, but it was thought advisable to increase it. The chairman states that twelve is too large and recommends a committee of about eight. The committee has a secretary, who is not a member.

The representatives of the men are chosen indirectly, by delegates, a given number of men electing one delegate. At the time of the first election there were 39 delegates who elected three representatives of the men. The men's representatives serve two years—three being elected each year so that there are always experienced men on the committee. The chairman of the committee says of the representatives of the men, "They are everything you could want. They are able to see what is right and are not afraid to say what is wrong. The men pick out live wires, what some people call 'agitators.' They make the best committee men, because they give you something to push against. You can't get any satisfaction with men who always agree with everything you say."

The representatives of the company are superintendents, assistant superintendents, and general foremen. The chairman of the committee, who is a company representative, is an assistant general superintendent. There are no foremen on the committee. Particular attention is given to

placing on the committee only broad gauged men who can take a liberal view of things.

The committee meets on the first and third Mondays of each month at 2 p.m. It was found desirable to set a definite time in order that the company's representatives, who are men of many responsibilities, could keep a time open for the meeting. The representatives of the men are paid for the time given to the work of the committee at the rate of their average hourly earnings and the amount is charged to the grievance committee's account.

Under the rules of the committee a grievance is not a grievance until it has been taken up with the foreman. Some grievances, however, it is not advisable to take up with the foremen and in these exceptional cases the committee takes primary action.

For filing complaints a grievance blank is provided which may be obtained from the time-keepers or from members of the committee. Form H is a reduced facsimile of the blank.

On the reverse of the blank are printed extracts from the "Rules of Procedure" which tell the workman how his complaint will be handled.

An advantage in requiring the men to write out their complaints, according to the secretary of the committee, is that often when they come to put the grievance down in black and white they find that they really have no cause for complaint at all. Although the committee's rule requires that all complaints be in writing the committee finds that some men are afraid to sign their names to written complaints. The committee, therefore, investigates complaints presented verbally to the members.

The grievance blank is forwarded in a sealed envelope or given personally to the secretary of the committee who acknowledges it within two days on the form shown by Form I.

GRIEVANCE BLANK

Please state your Grievance so that it can be readily understood. If necessary use another sheet of paper, in which case it should be securely attached. Be sure to sign your name and department in full. A separate blank should be used for each grievance.

Subject of Grievance.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

What is your foreman's name?..... Has this matter been taken up with your foreman?.....
When?..... With your general foreman or superintendent?.....,
What was the reason given for not correcting grievance?.....
.....
.....
.....
.....
.....

Date.....191... Signed.....
Department.....Check No....

NOTE:—When this form has been properly filled in, forward it in a sealed envelope by shop mail to the Secretary of the Grievance Committee or deliver it to the office of the Committee at the North End of Section D.

(Form H)

OFFICE OF GRIEVANCE COMMITTEE
North End of Section D

Date.....191....

Mr..... Check No...

Sec.....

We are in receipt of your communication of.....
in regard to.....
.....
.....

The matter will be considered by the Committee at an early date and you will be notified accordingly.

Very truly yours, Sec. of Grievance Committee.

(Form I)

The secretary of the committee has a most important position requiring great tact and familiarity with shop conditions. On the receipt of a complaint it is his duty to round up evidence, to discover what witnesses to call and in every way to prepare the case for consideration by the committee. His first step is to go directly to the complainant and find out the details. The men sometimes cannot analyze their grievances and the statements which come to the secretary are often incoherent. The secretary gets the issue clearly framed. Then he discovers who else knows about the conditions and can be called to testify. He finds in what ways manufacturing operations cause the condition complained of and what changes in operating routine will be necessary in order to adjust the complaint. It is apparent that in order to do this work the secretary must be singularly able to command the confidence of men and that he possess a thorough knowledge of shop conditions and manufacturing processes.

In many cases the complaint is such that it can be adjusted on the spot. In such cases, the secretary often acts as adjuster.

In order to economize the member's time a great deal of the committee's work is done by sub-committees. The secretary uses his discretion in deciding which cases demand the attention of the full committee and which can be handled by sub-committees. In effect he selects the sub-committees also, calling on those men who can best afford the time, and arranging the time of the meeting and the attendance of witnesses.

In the first half year of its existence the committee received between 250 and 300 complaints. Of these all but 77 were adjusted by the secretary or by subcommittees. The nature and outcome of 41 main cases which came before the whole committee was as follows:

Nature of complaint	Returned (beyond jurisdiction of committee)	In favor of complainant	Against complainant
Employment (Reinstatement)	6	..	3
Compensation	3	2	..
System of work	2	4	..
Working conditions	2	4	1
Piece rate limits	..	1	1
Discrimination	..	8	..
Management (Relations with foremen, etc.)	..	4	..
Totals	13	23	5

The chairman states that the class of cases which they had expected would be most numerous, relating to rate limits (the company uses a bonus system) has been among the least important, as the above table shows, and that various sorts of discrimination have produced the most numerous complaints. The following list of complaints shows the nature of the committee's work: "Unjust lay-off," "Telephone messages not delivered"—(this man had sickness in his family), "Unjust penalty," "Noon hour work," "Stolen tools," "Relief benefit," "Excessive noises,"

"Unfair distribution of group earnings," "Gang not formed right to get the most done," "Weak hand but required to do heavy lifting."

The committee has no executive authority but its recommendations are usually adopted. A record is kept of proceedings and decisions for the purpose of building up precedents by which future cases can be decided.

Summing up the value of the committee the chairman says that it is valuable both as a preventive of complaints and as a safety valve. Its very existence tends to prevent many abuses from being born because the foremen do not wish the men to complain. It acts as a safety valve, because, as the chairman puts it, it brings things to the surface which would not otherwise be known, but which would smolder ready to break out at any time. Finally, it gives the men confidence in the company's willingness to hear their complaints and give them a square deal.

Probably the best known example of employees' being granted a voice in handling grievances and certainly the one in which the employees have the greatest voice is that of William Filene Sons Co., Boston.[18] The employees of the store elect an Arbitration Board which consists of twelve members, one selected from each section of the store, and of a chairman appointed by the Filene Coöperative Association (to which every employee belongs by virtue of employment) from the Council of the Association which is elected by popular vote of the members.

The powers of the Arbitration Board extend to all cases of difference relating to

1. An employee and the management.
2. Two or more employees in matters of store interests.
3. The justice of a rule affecting an employee.

[18] The following account is based on a description of the plan contained in a booklet published by the store, entitled "A Thumbnail Sketch of the Filene Coöperative Association."

The Board may both initiate investigations and grant hearings to any employee so desiring. The decision of the Board is final in all cases within its jurisdiction. In cases of dismissal or increase of pay a two-thirds vote of the entire Board is necessary to decide, but in all other cases a majority vote of the entire Board is decisive. In cases of salary deductions such a vote of the Board may be an order for refund. In minor cases a majority of the whole Board may authorize the chairman to appoint a sub-committee of three members to act as an Arbitration Committee. The sub-committee's decision may be appealed by either party to the Board.

The questions most frequently brought before the Board are dismissals, change in position or wage, transfers, location in the store, missing sales, shortages, lost packages, breakages, torn or lost garments, differences between employees, payment for suggestions. Over five hundred cases came before the Board between January 1, 1901, and January 1, 1915. From September, 1912, to September, 1913, the Board handled seventy cases, the greatest number ever handled in one year up to that time. The decisions in these cases were in favor of the appellant in thirty-eight, against the appellant in thirty-two. The decisions for the entire period of existence appear to be about equally divided in favor of each side.

The member of the Board elected from each section of the store is the counselor or advisor of that section. The duties of the section counselor are:

1. To advise the employees in his section on questions arising in the conduct of their work.

2. To disseminate information concerning the Arbitration Board among the people of his section.

3. To instruct appellants in the detail of presenting their cases to the Board.

In other words the Board members perform very much

the same work among the workers which it was pointed out above that employees' representatives on a joint grievance board are peculiarly able to perform.

6. Rewards for continuous service.

It may be profitable to promote stability by paying an extra wage for continuous service. An eastern piano manufacturer since 1913 has paid a bonus of 2 percent of wages to first year men, 3 percent to second year men and 4 percent to men employed two years or over. The bonus is paid in semi-annual instalments on July 1st and January 1st. In 1915 the turnover was less than one-third the turnover in 1913 in spite of the fact that there was a good demand for labor from nearby munition centers. A St. Louis stove manufacturer since 1913 has distributed about $10,000 among his employees just before Christmas, as follows:

Men	employed	continuously	2	and	3	years	$10 each
"	"	"	4	"	5	"	20 "
"	"	"	6	"	7	"	30 "
"	"	"	8	"	9	"	40 "
"	"	"	10	"	11	"	50 "
"	"	"	12	"	13	"	60 "
"	"	"	14	"	15	"	80 "
"	"	"	16 years or over				100 "

This plan is unique in that the shares are independent of the workman's earnings. Unskilled men receive as much as skilled men of equal period of service. On December 15, 1915, 245, or 76.1 percent of a force of 335, had been employed two years or over, a remarkably large percentage.

A middle western plant pays a bonus at the end of the year of 10 percent of the earnings of each worker to those workers who have been in the service of the company for the entire year. The effect of this bonus upon stability is shown by a comparison of the resignation rate in December, immediately before the payment of the bonus, and in January, immediately after the payment of the bonus. The

resignation rate per 100 workers in these two months has been as follows:

	1908 to 1909	1909 to 1910	1910 to 1911	1911 to 1912	1912 to 1913	1913 to 1914	1914 to 1915
December	.7	.4	.9	1.2	.3	.6	.1
January	2.1	3.1	2.2	2.0	2.8	1.6	.9

As the resignation rate usually varies but slightly between December and January it is evident that the bonus payment exerts a decided effect in inducing the men to postpone their resignations until January.

The John B. Stetson Company, by paying a bonus which was gradually increased to 20 percent of earnings, practically eliminated changes among its hat sizers.[19] Because of the success of the plan among the hat sizers it was applied to the hat turners with the same effect. A bonus of either a fixed cash amount or a percentage of earnings is now given to every employee of the factory who works steadily the entire year.[20]

The Du Pont Powder Company on April 1, 1916, put into effect a service reward plan at its Arlington plant. The plan does not include foremen or department heads. All other employees who have been employed 2 years and less than 5 receive 5 percent of their wages in separate envelopes each month, those employed 5 years and less than 10, 10 percent of their wages, those employed 10 years and less than 15, 15 percent, those employed 15 years or more, 20 percent.

It is a common practice for street railway companies to increase the wages of motormen and conductors one cent per hour for each year of service up to 5 years. Thus if

[19] Milton D. Gehris, "Employment Problems and How the John B. Stetson Company Meets Them," *Annals of the American Academy of Political and Social Science*, v. LXV, May 1916, on "Personnel and Employment Problems," pp. 756-757.

[20] Gehris, *Ibid.*, p. 157.

the rate for first year men is 25 cents per hour, the rate for second year men is 26 cents, for third year men 27 cents, etc.

The Bullard Machine Tool Company pays a service premium of 10 percent of weekly wages earned during regular hours. A service premium voucher is enclosed in each pay envelope. The vouchers are not payable until four weeks after the date of issue, and then only providing the recipient is still in the employ of the company. The vouchers are non-transferable. By leaving the employ of the company a worker loses a premium of ten percent of his regular earnings for four weeks.[21] This plan is said to have materially reduced the turnover.

Most profit sharing plans are rewards for continuous service since as a rule only employees who have served a stipulated period, usually a year or two, share in the profits.

7. Miscellaneous aids to the establishment of good relations between working force and management.

The means discussed in this and the preceding chapters constitute the most important ways of winning the workmen's good will and of reducing the turnover, because they affect the worker's most vital interests. Other things which the management may do are distinctly less important. The so-called "welfare" work is of practically no influence if wages, working conditions and treatment are not right, because it affects only interests of secondary importance to the worker. Moreover, many of the benefits of "welfare" work are not felt every day but only on special occasions. As one manufacturer says, "You can't kick a man around for 29 days and expect to win his favor by showering favors on him on the 30th."

When the most vital interests of the worker have been provided for, however, there are a number of ways in which

[21] A. E. Freeland: "Wages for Ability, Output and Service," *Iron Age*, v. XCIX, pp. 1537-1540.

the employer can substantially assist his workers and which are likely in many cases to aid in arousing their permanent good will. The occasions on which assistance will be best appreciated are usually more or less crises in the lives of the workers when their needs are great.

Sickness, financial and legal difficulties are all likely to cause acute needs among workers in which assistance is greatly appreciated. If a mutual benefit association does not exist workers who are off on account of illness or ill health feel the need of sick benefits. Saving is such a slow and difficult task for a majority of workers that a fairly extended illness may wipe out the savings of several years. It is significant that "in 75 percent of the families receiving aid from the New York Charity Organization Society sickness was a very serious disabling condition. About eight-tenths of the relief expenditure of the New York Association for Improving the Condition of the Poor is made necessary by sickness." [22] On account of the severe financial strain imposed by illness of moderate or long duration, the payment of sick benefits meets a pressing need and is likely to be appreciated.

The number of cases of illness in which sickness benefits would in all probability be a substantial aid is surprisingly large. It is estimated that the average number of working days lost on account of sickness per wage earner in the United States is nine days per year.[23] The average loss is, of course, considerably greater when calculated upon the basis of only those workers suffering loss of time.

Table XXXIX shows the amount of sickness among the members of the Beneficial Association of a large eastern

[22] John B. Andrews, "Health Insurance," *Proceedings of the National Association for the Study and Prevention of Tuberculosis,* Twelfth Annual Meeting, May, 1916.

[23] Andrews, *Ibid.*

TABLE XXXIX

AMOUNT OF SICKNESS AMONG THE EMPLOYEES OF AN EASTERN ELECTRIC LIGHT AND POWER COMPANY

Year	Average number of members	Total number of days lost on account of sickness	Cases of sickness per 1,000 members	Average number of days lost per member	Average duration per case
1907 8 mos.	980	2,920 (*a*)	199.0 (*a*)	2.98 (*a*)	15 days
1908	1,196	3,906	219.9	3.26	14
1909	1,258	3,551	166.1	2.82	17
1910	1,369	4,506	204.2	3.29	15.3
1911	1,622	5,065	206.2	3.13	14.3
1912	1,796	6,704	209.4	3.73	17.2
1913	1,984	7,130	209.2	3.59	17.0
1914	2,199	7,849	196.4	3.57	17.0
1915	2,345	8,427	195.9	3.59	18.1

(*a*) Calculated on a yearly basis for comparison with other years from data for 8 months.

electric light and power company.[24] These figures do not include all sickness among the members but only cases the duration of which was *one week or more.*

These data show that nearly 20 percent of the members annually suffered cases of sickness of more than one week's duration each and that the average duration per case (of the cases of one week's duration or more) was from two to two and one half weeks.[25]

The sickness rate among the employees of another large eastern public service company operating street railways and furnishing electric light and power is shown in Table XL.[26] These figures also include only cases of sickness of

[24] Figures based on the Annual Reports of the Employees' Beneficial Association.

[25] The number of cases of sickness per 1000 members does not, of course, exactly express the number of members sick per 1000 because some members experienced several cases.

[26] From Report of the Welfare Department.

TABLE XL

AMOUNT OF SICKNESS AMONG THE EMPLOYEES OF AN EASTERN PUBLIC SERVICE COMPANY

Year	Number of employees	Total days lost on account of sickness	Cases of sickness per 1,000 employees	Average number of days lost per employee	Average duration per case
1911	10,215	30,526	105.5	2.98	28.49
1912	10,901	31,989	103.1	2.93	28.46
1913	10,988	33,674	113.5	3.06	26.98
1914	10,728	36,748	118.0	3.44	29.03

more than one week in duration. Approximately 10 percent of the employees of this company suffered cases of sickness of more than one week in duration each and the average duration per case (of the cases of over one week's duration) was nearly 30 days.[27]

[27] Among women in Indiana retail stores and garment factories and in the Boston retail stores the Bureau of Labor Statistics found a higher rate. Among 711 women employed in Indiana stores the Bureau found 153 cases of sickness averaging 33.5 days each. These figures cover only the portion of the time since the women had entered industry. Some had not been engaged in industry for the entire year. The period of employment in industry for the entire group was equivalent to a full year in industry for 653. The rate per 1000 per year on the basis of 653 employed a full year is 234.3, the days of sickness per 1000 on the same basis 7,849 (U. S. Bureau of Labor Statistics, *Bulletin,* No. 160, p. 56). Among 517 women in Indiana garment factories the Bureau found 135 cases of sickness averaging 29.0 days each, a rate of 273.6 cases per 1000 workers per year and of 7,933 days of sickness per 1000 workers per year (*Bulletin,* No. 160, p. 90). Among 1,156 employed in Boston retail stores the large proportion of 907 reported 2,061 weeks of unemployment due to sickness or 2.27 weeks per individual. These figures cover only the portion of the year since the workers had entered industry and before they had left industry. Some of the workers did not enter industry until after the beginning of the year and others left it before the end

Assistance to workers who become involved with loan sharks is highly appreciated. The welfare man of an eastern firm employing about 5,000 men prevented about 300 cases of garnishment in 18 months. The company bought the claim securing a general release. The company then aided the worker in securing a loan from the Morris Plan bank in the city, with which he compensated the company. The men paid back the loan to the bank at the rate of $1 or $2 per week.

Mr. Richard A. Feiss states that the policy of his company in fighting every case of the loan shark evil in the courts has led loan sharks to refuse to lend money to their employees.[28]

of the year. The total number of weeks in industry for the group during the year was 57,901. The period of unemployment on account of sickness was 3.56 percent of the total time in the period covered by the reports (U. S. Bureau of Labor Statistics, *Bulletin*, No. 182, p. 67). Among another group of 346 women employed in Boston retail stores the Bureau found that an average of 8.2 percent of an average total unemployment of 16.9 weeks of unemployment, or 1.38 weeks, was caused by illness of the worker. This was 2.95 percent of an average possible employment per individual which (deducting the time during the year before the workers had entered industry or after they had left) was 47.0 weeks (*Bulletin*, No. 182, p. 53).

There are two slight errors in the figures relating to the Boston workers. The number of weeks of illness among the first group is given as 1,162 full weeks of 6 consecutive working days. These were counted as full weeks in the above calculation, although it is unknown in how many instances the seventh non-working day was also a sick day. In a large proportion of cases it undoubtedly was. The 6,295⅓ of scattered days of sickness reported by the Bureau were reduced to weeks by dividing by 7.

[28] "Personal Relationship as a Basis of Scientific Management," *Bulletin of the Society to Promote the Science of Management*, v. I, No. 6, *Annals of the American Academy of Political and Social Science*, v. LXV, May 1916, on "Personnel and Employment Problems," p. 45.

The legal department of the company can be of material assistance to workers in many ways. Besides assisting those who are in the clutches of loan sharks, it can give advice in domestic troubles, in disputes with landlords, draw wills, etc. A manufacturer of rubber goods employs an attorney who spends two afternoons a week giving free and confidential legal advice to the employees. The welfare man of the eastern concern mentioned in the preceding paragraph, who has had a legal training, drew 70 wills for employees of the concern in 18 months. Legal counsel and advice concerning real estate and investments is said to be given gratis to between 150 and 200 employees daily by the legal department of the Ford Motor Company. The Detroit factory and office force at the time of this report (January, 1917) numbered 42,432.[29]

[29] *Ford Times*, February, 1917, pp. 309-310.

CHAPTER XVII

THE SUPERVISOR OF LABOR

1. The need for and the function of the supervisor of labor.

Probably the greatest contribution which "scientific management" has made to the art of management is that it has called attention to a fact which every one knows, but the significance of which is not appreciated, namely, that there is a best way of doing everything and that this way is learned not by chance but by systematic investigation. Standardization based upon systematic investigation may be said to be the essence of "scientific management."

The study of the labor turnover reveals that a definite and well planned labor policy is as essential as are standard practices in manufacturing operations. The turnover is primarily significant as an indication of the serious consequences which follow haphazard methods of dealing with labor. The most important causes of the turnover, faulty selection of men, inadequate instruction of new hands, unsatisfactory physical conditions of work, unnecessary physical strain imposed upon workmen, excessive hours of labor, wages too low to arouse the interest and enterprise of workmen, lack of opportunity for workers to earn advances in wages and position by demonstration of merit, faulty methods of discipline and supervision, the general lack of interest on the part of men in their work, and the failure of employers to win the loyalty of workmen, all point to failure of managers adequately to study the problems of handling labor. A means is needed to provide for the mak-

ing of a close study of the problems of handling men, for the determination on the basis of this study of a definite labor policy, and for the execution of the policy decided upon. It is to fulfill this need that the position of the supervisor of labor or labor manager has been created by a number of enterprises.

It is desirable to concentrate the responsibility for determining and executing the labor policy of the enterprise in the hands of a single man because:

1. Definite concentration of responsibility for the handling of such matters as the rates of wages to be paid, working hours, increases in wages and promotions, relief of physical strain, amelioration of working conditions, handling of grievances, improvement of the methods of foremen, gang bosses, and higher executives in handling men, in the hands of one person is necessary to assure that they receive adequate attention. If the responsibility is left to executives absorbed in the problems of increasing output and cutting costs, such as the general manager, superintendent, division superintendents, or foremen, these matters will certainly be neglected. The interest and attention of these men is centered elsewhere. Moreover, it is a peculiarity of the daily problems of foremen, superintendents and managers that they are usually of immediately pressing importance requiring solution at once, for output cannot be interrupted or delayed. These immediately pressing problems necessarily take precedence with the operating officials over the problems of labor policy although the problems of labor policy may in the long run be of equal or greater importance.

2. Proper handling of labor matters requires qualities of personality and temperament which executives often lack. Sound decision in matters of labor policy depend to a great degree upon exceptional insight into human nature, sympathy and patience with men. There is need for

a man exceptionally endowed with these qualities who shall decide fundamental questions of labor policy, and who shall train minor executives in the proper methods of handling men, assist them to overcome their natural deficiencies, and, by acting as a court of appeal for aggrieved workmen, correct the mistakes made by the executives less skilled in dealing with men.

3. The work of foremen, superintendents and managers imposes a discipline upon them and gives a bent to their temperaments which tends to unfit them for dealing with matters of labor policy. The work of these executives is largely to energize others, to get results quickly and in large quantities. The emphasis in their work is largely on speed and they become experts in producing speed. As we have seen, however, an important need in handling men is patience, for in dealing with human nature one must abide one's time until a favorable moment for action comes and one must be willing to wait for one's policies to show results, for progress in such matters as changing men's opinions or attitudes, winning their confidence or coöperation, is slow and results do not materialize immediately. Men who have been trained in a school of quick action and quick results are likely to be too precipitate and too impatient to be good managers of affairs in which patience is such an important factor.

4. Sound decisions in regard to labor matters depend not merely upon sound intuition, but also upon specialized knowledge, which only a specialist has the time to acquire. Handling of labor is a deep and complicated subject and specialized study of it is necessary to fit one to decide the numerous problems which arise in connection with it. The labor policy must be planned by experts just as much as the machinery and manufacturing processes must be planned by experts. The prevalent idea that ability to handle men is merely a natural faculty, or the result solely

of character and temperament, is only half true. How to select men, how to train men, how to pay men, what policy shall be followed with respect to wage increases and with respect to promotion, what means shall be used to improve the handling of men by minor executives, how may grievances be disposed of with least friction, what welfare work would be desirable and how it should be conducted, are questions the proper decisions of which require detailed and specialized knowledge.

The decision of general questions of labor policy demands also detailed and exact knowledge of the point of view of the workmen. Mere knowledge of human nature in general is insufficient. A good understanding is required of what is in the minds of the workers, of how things appear to them and why, of their hopes and ideals, their fears and prejudices, and of the reasons which lie behind them. Foremen, superintendents and managers are woefully ignorant of the contents of the mind of the workers despite the fact that many of them are former workmen.

5. Conflicts are bound to arise between the immediate interests of the production and the sales departments and the interests of the workers. Due regard to the interests of labor may require a temporary sacrifice of output. It may be profitable to the firm to make changes in the methods of doing work or in the plant which temporarily interfere with production and which discommode certain departments but which economize labor or which tend to improve relations between the company and its help. If the decision of these matters is left to the production or sales departments the interest of the company in the well being of its help will not receive due consideration. The interferences with customary methods of production or of marketing looms large in the eyes of the officials of the production and selling departments and the advantage to be gained from the standpoint of labor appear unimportant.

Often the production or sales officials are unable to see that the expected advantages will accrue at all. In order to assure that the importance of the human factor shall not be underestimated in the determination of policies some official of standing is needed who is willing and able to act as a champion of labor when conflicts occur between the interests of labor and the interests of some particular department or official.[1]

6. The various special sub-departments dealing with labor, such as the employment, the welfare and service, the instruction and the medical departments should be united under the direction of a specialist in labor matters, because:

(a) By so doing, it is possible to put an exceptionally capable man of great executive ability in charge who will determine the fundamental policies of each sub-department and who because of his greater capability and vision will provide a wiser and more far-sighted policy than the less

[1] It is not of course to be expected that the supervisor of labor, who is paid by the company, will stand for the interests of the laborers as against the interests of the company, and this is not implied in the above statement. There are many cases, however, in which the long time interests of the enterprise can be promoted by conferring certain benefits on labor which may temporarily interfere with production. Such might be the case in the alteration of the plant to provide more light, air, etc., and better working conditions for workmen. Making the alterations may temporarily impede production. In such cases, if the decision were left solely to executives responsible for production, the decision might not correspond with the real interests of the firm. Another case of possible conflict might arise if, in order to diminish overtime in rush season, restrictions were imposed upon the time within which deliveries could be promised, a practice followed by a Cleveland firm mentioned in Ch. XIII. The sales department naturally would strenuously oppose such limitation. The true interests of the firm, however, require that the interests not merely of the sales department, but also of the laborers be taken into consideration. Some one is necessary to represent the interest of the firm in the good will of its working force when this question is decided.

capable men who are in immediate charge of the particular sub-departments.

(b) In order that the financial and other interests of the respective sub-departments dealing with labor shall receive adequate consideration, these sub-departments should have their interests championed by an executive of greater ability and prestige than the heads of these respective sub-departments.

(c) The work of the sub-departments dealing with labor offers many opportunities for coöperation. Central direction facilitates coördination of their activities.

2. The development of and duties of the position of supervisor of labor.

Two principal causes have led to the development of the position of supervisor of labor, and as a result of these two causes we have two classes of supervisors of labor, the products respectively of each of the two causes.

The first cause is the need more and more felt, as betterment work has become more comprehensive and elaborate, of some one to supervise and to coördinate the various betterment activities such as welfare work, safety work, medical supervision of employees, and educational work. It has been felt that betterment work should be developed along the lines of some well worked out plan and that the various types of betterment workers, the welfare secretaries, service workers, safety experts, physicians, visiting nurses, etc., should be subject to closer supervision than the general manager is able to give them. To the general supervision of betterment work is sometimes added control of hiring.

The supervisor of labor in this stage is little more than a more important betterment worker, a general director and general supervisor of betterment activities. He has not yet been assimilated into the operating organization, he has little authority to determine the labor policy of the company. He deals largely with matters outside the regular routine of

conducting operations, he has to do primarily with the men while *off* the job rather than *on* the job, with such matters as the development of recreation among the men, the conducting of the plant restaurant, provision for sick and disabled workers and their families, aid to workers in legal trouble, improvement of the home conditions of workers, promotion of thrift, Americanization of immigrants, providing educational courses, instead of with such matters as wages, hours, discharge, promotions, transfers, grievances, methods of foremen in handling men. The supervisor of labor in this stage is primarily an "uplift" worker rather than an operating official and is separated from operating officials by more or less of a gulf.

The second cause for the creation of the position of supervisor of labor is the better realization of the importance and complicated nature of the problem of handling men. When betterment work to improve the condition of workers was commenced, the systematic study of the problems of management had made little headway and little attention had been paid to the intensive development of the efficiency of organizations. Managers were unaware of how wasteful and fundamentally defective were their methods of handling labor. The prevailing opinion concerning the cause of the discontent of workers was that this discontent was rather superficial and could be remedied by rather superficial means. Welfare work was thought a sufficient remedy. Under these circumstances it is easily seen why the need for a well planned and well coördinated labor policy for the entire plant was not appreciated.

As managers observed the experience with the superficial forms of welfare work which marked the beginning of the efforts to improve relations between employers and their men and as they made more and more systematic study of the means of developing the efficiency of their organizations, they became aware of the deep-seated nature of labor's dis-

content, of the fundamentally defective character of their methods of handling men and of the superficial and inadequate character of their devices for improving their relations with their men. They perceived that the problem of handling men was deeper and more complicated than they had suspected, and that a specialist is needed who should have charge of all matters relating to labor and who should have the responsibility of working out a labor policy for the plant. The perception of this need has led to the second stage in the development of the supervisor of labor —the creation of supervisors of labor of the second type, of the business rather than the uplift type. Instead of being primarily a general director of betterment work the second type of supervisor of labor has real authority in determining and executing the labor policy of the plant. He deals with the men primarily while on the job rather than when off it. He determines wage rates, passes on discharges, transfers, and promotions, settles grievances, supervises the methods of foremen in handling men as well as supervises betterment work. He is an integral part of the operating organization.

Supervisors of labor who are merely general directors of betterment work are more numerous than supervisors who are real directors of managerial policy towards labor, for the process of breaking down the independent authority of the foremen over labor is a slow one. The tendency, however, is for supervisors of narrow authority to acquire broad powers. This occurs in several ways.

The labor supervisor often encourages workers to bring him their complaints and troubles. He may have no authority to adjust them, but on behalf of the worker he will take up with the proper person those complaints which he considers justified, and endeavor to effect an adjustment. Workmen may be notified of the willingness of the labor supervisor to hear complaints by a notice in the book of

information and instruction. The book of information for employees of a shoe factory, for example, contains the following notice:

"GRIEVANCES. If for any cause employees are not satisfied with conditions as they find them, they will confer a favor on us by taking up the matter with Mr. ——— (the labor supervisor) in his office after 3:15 p.m."

If the supervisor of labor supervises the employment department he learns the reason why men resign. The complaints which men bring to the labor supervisor and their reasons for resigning reveal faults in the methods of foremen in handling men. The labor supervisor often seeks to prevent recurrence of the grievances by pointing out to the foreman the consequences of his actions and by calling his attention to the loss to the company and to the foreman himself from men leaving.

Control of the employment department especially is likely to be the basis for an expansion in the authority of the supervisor of labor. A number of employment managers have developed into general labor administrators with broad powers.

If a policy is followed of filling vacancies whenever possible by promotion, control of the employment department means that promotions are in a large measure determined under the direction of the supervisor of labor and in the more important cases subject to his specific approval. Whether discharged employees shall be given a chance in another department depends upon the labor supervisor's approval.

Because the employment department is best informed concerning wage rates in the market and because it is first to feel the effects of a scale too low to attract and hold labor, the supervisor of labor who manages the employment department is likely to be consulted in regard to wage advances and is likely to take the initiative in making recom-

mendations for wage advances necessary to keep pace with the market.

The influence of the supervisor of labor is particularly likely to expand and become strong in plants which are growing rapidly and in which men are being made foremen whom the supervisor of labor befriended as ordinary workmen, aiding them in adjusting grievances, procuring transfer or promotion, or assisting them through the company's welfare work.

When they first become foremen these men often seek the advice of the labor supervisor in handling men. They are likely to feel less reticent about consulting the supervisor of labor in such matters than they do about consulting other foremen. On account of their regard for him, their confidence in his judgment and willingness to listen to his advice, he is able materially to influence their methods of handling men. Later when matters such as employees' grievances, transfers, promotions, etc., arise, the influence of the supervisor of labor is especially strong with these foremen.

In such ways as these, competent supervisors of labor of limited authority, by gradually broadening their influence, prepare the way for the formal concentration in their hands of the authority to determine and execute the labor policy of the plant.

The following summaries of the functions of the supervisor of labor or equivalent official in several plants illustrate the tendency to concentrate more and more of the authority over labor matters in a single person.

The Employment Department of the Curtis Publishing Company is divided into four main divisions, each of which is in the charge of its manager: employment division, instruction division, medical division, and welfare division. The entire department is in the charge of an employment

manager, who reports directly to the general manager of the company.[2]

The labor department of a manufacturer of rubber goods is vested with the following functions: (1) general supervision of working conditions, (2) employment, (3) labor adjustments, (4) lockers, showers, (5) legal advice, (6) plant safety, (7) factory messenger service, (8) accident prevention, (9) accident compensation, (10) health supervision, (11) emergency hospital, (12) library, (13) factory newspaper, (14) educational work, (15) lunchroom service, (16) suggestion system, (17) supervision of housing, (18) insurance plan for employees, (19) retirement plan for employees, (20) service pin awards. The manager of the labor department reports directly to the factory manager.

In a plant manufacturing electrical apparatus, labor matters have been largely centralized in the hands of an assistant general superintendent. The manager of the employment department reports to him, the fixing of bonus limits is under his supervision, he is chairman of the grievance committee which hears grievances, but which, however, has only power to recommend adjustments.

In an eastern printing and bindery establishment, the employment and welfare work is centralized under single authority. This firm has taken a step which few others have taken. It has taken disciplinary authority from the hands of the minor executives (who in this case are more equivalent to gang bosses in charge of small groups than to foremen in charge of departments) and placed it in charge

[2] *Business Welfare as Practiced by the Curtis Publishing Company,* privately printed by Curtis Publishing Co., 1916; R. C. Clothier, "The Employment Work of the Curtis Publishing Company," *Annals of the American Academy of Political and Social Science,* v. LXV, May, 1916, on "Personnel and Employment Problems," pp. 94, 95.

of the labor supervisor. The group supervisors may merely recommend discipline.

In a western metal working plant, the betterment department has charge of the employment department and the efficiency work, sets the standards for all production, the time and method of work. The department has undertaken the responsibility of educating foremen in methods of handling men. The head of this department does not believe that the disciplinary authority should be taken from foremen.

As the importance of the human element and the intricate nature of the problems of handling men become more and more thoroughly appreciated, the need of a well planned labor policy and of some one to plan and administer it will be more keenly felt. We may expect most large plants to create the position of supervisor of labor and eventually to subject to his authority all questions of handling men. The supervisor of labor will possess either the right to make final decisions in such matters himself, or the duty to investigate and to recommend decisions to the general manager. Labor supervisors of the future may be expected to possess the following principal duties:

1. Investigation of the proper wage rates and of the most desirable form of wage payment (such as day work, piece work, or the various forms of premium and bonus systems) for each job in the plant, and recommendations of modes and rates of payment to those authorized to decide these matters. This includes the special modes and rates of payment for inexperienced workers and the methods of advancing the pay of new hands as they acquire skill.

2. Supervision of physical conditions of work and recommendation of changes in plant, equipment and working processes, to increase the comfort of workers and to reduce the physical and nervous strain of the work. As changes in plant equipment and methods all involve the interests of

the production department, the labor department cannot order changes in equipment and plant but can simply recommend changes.

3. Representation of the interests of the workers in so far as they are interests of the firm, when the interests of the workers conflict with the immediate interests of certain departments.

4. Because the supervisor of labor has more intimate knowledge of the workers than any other high official and because, presumably at least, he is a better judge of human nature than other officials, he is the logical person to select foremen and gang bosses. In this, of course, he would have the advice of the employment and instructional departments, and in the case of foremen, of the retiring foreman, and in the case of gang bosses, of the foreman.

5. The training of men to become foremen and gang bosses should be under the direction of the supervisor of labor.

6. Responsibility for the methods of foremen and gang bosses in handling men. It should be the duty of the supervisor of labor to recommend to the general manager the discharge or demotion or other discipline of foremen and gang bosses who are incompetent or who fail to show proper spirit in dealing with their men. Foremen and gang bosses should be deprived of disciplinary authority. They should be permitted only to recommend disciplinary action. Authority to discipline workers should rest with the supervisor of labor alone, subject to appeal to the general manager.

7. The supervisor of labor should act as a court of appeal for all grievances. In regard to grievances involving questions of labor policy only, the decision of the labor supervisor should be subject only to appeal to the general manager. When adjustment of the complaint involves the interests of other departments, such as the production de-

partment, the supervisor of labor can only recommend action.

8. Supervision of the employment office.

9. The medical department should be responsible to the supervisor of labor.

10. Supervision of the training of employees.

11. Planning and supervision of the work of the welfare department.

12. Supervision of suggestion system.

13. Supervision of "safety first" campaign.

14. Supervision of house organ, when the organ is intended for employees of the firm rather than for customers.

15. Supervision of the handling of office boys and messengers. Because of the great possibilities of developing valuable material for the organization from office and messenger boys, particular attention should be paid to them. They should be organized into a separate office and messenger boy department in charge of some one who understands boys and who reports to the supervisor of labor. Special instruction on the company's time should be given to the boys.

3. The relation of the supervisor of labor to the conflict between capital and labor.

In the foregoing discussion of causes of and remedies for the labor turnover it has been argued that the most important cause of the turnover is lack of appreciation of the importance of the problems presented by the human factor in production, resulting in the failure to study the problems of the handling of men and, therefore, in the use of inefficient methods of handling men. The fundamental remedy for the turnover, therefore, consists in the systematic study of the problems connected with the employment and handling of men and in the formulation and application on the basis of such study of a definite labor policy—in other words in the pursuit of intelligently conceived methods of

handling men in place of haphazard, uncoördinated methods unworthy of the name of policy. The formulation and application of such a labor policy requires the services of a specialist in the handling of men—the supervisor of labor or labor manager. The question naturally arises, What is likely to be the effect upon the relations between capital and labor of the direction of the handling of men by expert labor administration?

An enlightened labor policy in a single plant by giving the workmen better wages, better working conditions, and better treatment than they can obtain elsewhere, may eliminate the conflict between workers and management in that particular plant. But even the most enlightened labor policy cannot eliminate the conflict between labor and capital generally because it cannot eradicate the difference of interest which exists in the very nature of things between capital and labor due to the fact that capital is a buyer and labor a seller.

Although expert labor administrators cannot eradicate the difference of interest which is the basis of the conflict between capital and labor, they may, by eliminating unnecessary causes of conflict, materially lessen its intensity. The causes of conflict which exist because of employers' ignorance of what their true interest in handling men is, expert administrators will largely eradicate. They will mitigate fatiguing and disagreeable features of work, improve working conditions, raise wages which are so low as to discourage initiative and enterprise on the part of workmen, shorten the working day when in excess of the productive optimum, reward workers on the basis of merit, open up roads of advancement to workers. Where profitable they will eliminate friction due to tactless and inconsiderate methods of handling workmen, although there is no assurance that considerate treatment of workers is always profitable. The conditions which are thus im-

proved by an enlightened labor policy are the most extreme ones, precisely the conditions which are most likely to give rise to antagonism and bitterness not merely because of the harshness and severity of the conditions themselves but also because they indicate such a palpable callousness and indifference on the part of the management toward its workers. In studying the psychology of the relations between workers and management this fact should be remembered, that it is not only the physical and nervous pain caused by onerous conditions which causes resentment among the workers but it is the indifference of the management to the effects of the onerous conditions which is especially irritating.

The expert labor administrator will mitigate the antagonism between capital and labor due to mere lack of contact and acquaintance between the management and the workers and due to ignorance or neglect on the part of the management of the sensibilities, prejudices and ideals of the workers because if he is a real expert, his policies are based upon a thorough study of the ideals, prejudices, etc., of the workers.[3]

[3] In connection with the problem of bringing about intimate contact between the operating organization and labor, it should be noted that a supervisor of labor who has a real authority in the determination of labor policy is the only official who is in a position to bring about a satisfactory contact. The welfare manager, although possessing the time necessary to become acquainted with the workers and to learn their point of view, is not an operating official and has little influence over operating methods. The knowledge of the workers' point of view which the welfare manager possesses, therefore, does little to produce an enlightened labor policy. Substantially the same objection applies in a lesser degree to the employment manager. It was pointed out above that an employment manager of initiative and of persuasive ability may exert some influence upon the methods of handling men, but his influence is limited by the fact that he has no authority to decide matters of labor policy. A supervisor of labor who is only a

More intimate acquaintance with workers and greater knowledge of how to handle men lead to better appreciation on the part of the management of the value of good will of the workmen. It may or may not be profitable for the management to incur substantial expenditures to win the good will of its workers, but in so far as it is profitable an intelligent study of the labor problem will inform the labor supervisor and will lead to the cultivation of the good will of workers.

To say that an enlightened labor policy will eliminate conflict between the men and management in so far as this is *profitable,* says nothing concerning in how far the elimination of causes of conflict *is* profitable.

An *enlightened* labor policy is not necessarily a *liberal* labor policy. Intelligent study of handling labor may reveal that lower labor costs can be obtained by treating the men well and by making loyalty and good will the foundations of efficiency. But such study may also show it cheaper largely to disregard the men's attitude toward their work and toward the management, to accept the costs of the large turnover which inevitably follows the failure to treat labor liberally, and to rely upon low wages and "drive" methods to produce low labor costs. *The effect upon the relations of the men and management of the determination and direction of labor policy by an expert depends in part, therefore, upon whether the study of the handling of men indicates that a liberal or a "drive" policy is the more profitable.*

general supervisor of betterment work and who possesses little or no authority in the actual handling of labor is unable to bring about a satisfactory contact for the same reasons, because he lacks the means to embody his understanding of labor into the labor policy of the company. Only when the determination of the labor policy is placed in the hands of a specialist in labor matters will the problem of adequate contact between the men and management be solved.

In the matter of providing good physical conditions of work, experience seems to have demonstrated that the expenditure necessary to provide good physical conditions usually is more than compensated by the greater efficiency of the force.

Time and motion study has rendered the piece rate cutting policy far less profitable than formerly, and probably has rendered it less profitable than a merit system of wage payment.[4]

Proof is lacking, nowever, that other features of a liberal labor policy, such as high wages, short hours, liberality in

[4] The piece rate cutting policy was profitable before the advent of time and motion study because in the absence of time and motion study it was difficult to set a rate which was proper in view of the amount of work which a worker of average ability could turn out. The reason was twofold. In the first place the amount of work which a worker can turn out depends upon the method which he uses. In the absence of motion study no standard method of doing the work existed. The rate which was set was based on the method of doing the work which the worker performing the test by chance *happened* to use. In the second place, in the absence of the close observation of time study the management could not determine whether the worker was working at the maximum speed he easily could maintain or much below it. The result was that the rate set upon the job in the first instance was often substantially higher than necessary to produce a reasonable compensation for an average good man working at a fair rate of speed. The cut which could be made in the rates without forcing them below the amount necessary to produce the supply price for the type of labor involved was so great that the rate cutting policy was extremely profitable. This has been especially so when the workmen purposely have worked slowly in the trials for setting rates in order to bring about the establishment of a high rate.

Time and motion study greatly reduce the inducement to cut rates, because they render it possible to set a rate in the first instance which corresponds with a fair degree of accuracy to the speed which a normal worker can maintain. The more accurate time and motion study become, the less becomes the profit in rate cutting.

dealing with grievances, and liberal and considerate attitude toward labor in general are profitable from the narrow, short time business point of view. The fact that liberalism seems to have paid in individual instances is no proof that it would be profitable if adopted simultaneously by a large number of employers. A liberal policy may be profitable in dealing with some classes of workers but unprofitable in dealing with other classes. Great doubt exists, for example, in how far the application of a liberal policy is profitable in managing unskilled or slightly skilled labor. When the boundary is reached beyond which a liberal labor policy no longer pays from the standpoint of the individual employer, broader considerations alone remain to support the pursuit of a liberal policy.[5] The broader considerations which may cause the pursuit of a liberal policy toward labor beyond the dictates of the mere business advantage of the individual employer are the employer's class interests and the general social welfare.

The pursuit of a niggardly and drastic policy toward labor may profit a few employers but be unprofitable if practiced by employers in general. The reason for this is that the costs of the niggardly and drastic policy are not felt in full by a single employer when others do not practice it, but the employing class as a whole cannot escape the costs of the policy when it is generally pursued. A single employer who overdrives his workers, reducing the

[5] The determination of whether a liberal policy is advantageous or disadvantageous, even from the narrow business standpoint, is of course largely a matter of judgment rather than of cost accounting, since the precise effects upon costs of many expenditures cannot be traced. The liberal inclinations of the manager, his desire to see a prosperous and contented working force and to err on the side of liberality rather than on the side of niggardliness, will be the deciding factor in determining the decision long before the point is reached beyond which social considerations alone justify the pursuit of the liberal policy.

length of their industrial life, can replace them easily. The overdriving of workers in general, however, decreasing the amount produced by each during his industrial life, is equivalent to a decrease in the general supply of labor and detrimental to capital precisely as is a decrease in the number of workers.

The pursuit of a liberal labor policy, by increasing the average efficiency of labor during its industrial life and hence increasing the labor power of society, benefits capital just as does an increase in the number of laborers. The profitableness of the policy, however, depends upon its pursuit by employers in general. To a single employer or a few employers, the policy may be unprofitable because the advantages accrue to employers in general rather than only to those particular employers who incurred the cost of the policy.

The discontent and animosity produced in the laboring class by the pursuit of a "drive" policy by a few employers may be of little significance because the number of workers affected is small. When, however, a "drive" policy is practiced by employers in general, affecting the entire working class, widespread and dangerous animosity may be aroused against employers. Although single employers may find a "drive" policy practical, the interests of employers as a class may demand the pursuit of a liberal policy.

The pressing need for a broadly conceived, statesmanlike policy toward labor on the part of employers from the social standpoint is, of course, easily demonstrated. The social advantage from the improved physical and economic condition of the workers is self-evident. Some other social advantages are:

1. The pursuit of a "drive" instead of a liberal policy engenders animosity and antagonism among the workers which enormously complicate the problem of working out a satisfactory program of social reform. Why a resentful

state of mind complicates social reform is almost too self-evident to require explanation. In the first place, anger and hatred concentrate attention upon the destructive rather than the constructive aspects of social reform. Interest is centered upon destroying or inflicting injury on the source of the injustice rather than upon working out adequate substitutes for the institutions and social arrangements which it is proposed to destroy. This is well illustrated by radical movements of to-day of which socialism is the most conspicuous example. The exponents of socialism are admirably definite, specific and vivid in their indictment of the present economic system. They offer a solution which is particularly calculated to appeal to those who suffer from the imperfections of the present order because it apparently deals a death blow to the prosperity of those who have prospered under the present order and who seem to the sufferers (and not unnaturally) to be the cause or at least the beneficiaries of their misfortunes. When it comes to the details of the process by which the socialistic state is to be created, the nature of its organization, the methods of its operation, and especially what fresh problems of major importance, if any, it is likely to bring with it and how they will be solved, the praiseworthy specificness shown by the socialists in their destructive criticism ceases and their statements become vague, general, contradictory or statements cease to be forthcoming. The reason why large numbers of people can be brought to commit themselves so assuredly to the support of a drastic remedy concerning which they know almost nothing without exhibiting curiosity for a detailed exposition of how the remedy will work, is because they are so carried away by their resentment against existing injustices, that they think only of wreaking vengeance upon the causes of injustice and do not consider the consequences of their program. They are in a destructive rather than a construc-

tive frame of mind and in this mood are necessarily incapable of giving proper attention to the practicability of the proposed remedies. The tendency for men to be carried away by their destructive impulses to the neglect of the constructive problems of social reform is more or less characteristic of the social reform movement in general. Liberality by capital in dealing with labor is needed in order that by the mitigation of the suffering due to the imperfections in the present order, the heat of men's resentment may be lessened and they may acquire a mood more conducive to the rational consideration of constructive problems of reform.

A second respect in which animosity hinders the attainment of sensible solutions of social problems is that it encourages precipitate action. The angry man wishes immediate action. He opposes the delay required by investigation and deliberation. Quite apart from the fact that anger directs the attention into destructive rather than constructive channels, it is inimical to the rational solution of social problems because it encourages ill considered, hasty action.

2. The pursuit of a drastic "drive" policy by capital, by intensifying the class consciousness of labor and capital and their absorption in narrow class aims and by arousing animosity and prejudice between them, tends to cause them to fail to appreciate the extent to which their interests are identical, the extent to which industrial prosperity is dependent upon labor, and the extent to which it is dependent upon capital. In the prevalent state of class warfare in which each class is primarily concerned with protecting itself against the other, the idea that their interests are in a large measure identical and that mutual advantage can be gained by coöperation becomes almost inconceivable.

3. The attainment of the greatest social welfare requires

the development by members of each class of broad conceptions of their responsibility for the general welfare. Social reform cannot be adequately realized by the efforts of various classes to obtain the satisfaction of narrowly conceived class rights but by the development of *mores* which impose upon all classes broader responsibilities for the general social welfare. In the constructive phase of the social revolution into which we are now entering and in which we are endeavoring to reorganize our shattered institutions and to coördinate old and new, the development of broad conceptions of duties and of the necessity for coöperation among various classes is of special importance. Particularly is it important to the progress of social welfare that labor be induced to feel a large measure of responsibility for the maintenance and promotion of industrial efficiency, that it be induced to coöperate liberally to further the increase in production.

Willingness to assume duties depends upon the recognition accorded one's rights. Men are in no mood to give consideration to their duties until they feel that their rights have received fairly liberal recognition. As long as they are conscious of gross injustice their interest is concentrated on the means of obtaining redress. Particularly out of the question is it that they should feel a sense of obligation toward the very persons who are responsible for the supposed injustice. If capital pursues a narrow, selfish policy toward labor, treating labor simply as an instrument of production rather than as a partner in the business, can labor be expected to feel a responsibility for the maintenance of the prosperity of the very industries from which its exploiters reap their profits?

4. Labor acquires its notions of the ethics of the industrial struggle largely from the actions of capital. If capital, unconsciously acting as an instructor to labor, exalts wanton selfishness, teaches labor that the industrial strug-

gle is a ruthless and relentless pressing of every advantage to the utmost limit without regard for others except in so far as enlightened self-interest demands it, labor will model its methods more or less after the same pattern. If, as seems not unlikely, labor becomes the dominant power in industry, it will then exercise its power with the same ruthless indifference to the general welfare which it has been taught by capital to practice. The practices of unions which have attained decided power indicate that labor may be expected to pursue as narrow and selfish a policy as capital. If the sense of social responsibility of both labor and capital is to be raised, it remains for capital, which is now generally dominant and which largely sets the standards for labor, to take the first step by assuming a broad social responsibility in its policy toward labor.

5. The effects of the pursuit of narrow, selfish policies and the use of oppressive, ruthless methods by capital and labor are not confined to the relations of capital and labor between themselves. The pursuit of these policies and the use of these methods tend to lower social ideals in general for they lower the "plane of general sentiment out of which imperatives and obligations arise." [6] Altruism, sympathy, tolerance, sense of duty, faith in human nature, out of which high social ideals spring, cannot flourish in a society split into two hostile parts and engaged in a bitter struggle. A bitter cynicism, instead, is likely to be the spirit of such a society. A liberal labor policy is needed in order that the inherent difference of interest between labor and capital may cease to give rise to a bitter struggle which poisons the "social consciousness" with hatred, envy and suspicion and impedes the development of social ideals.

Will the expert labor manager in formulating the labor policy be more susceptible to the broader class and social

[6] Ross, *Social Control*, p. 416.

considerations than the typical president or general manager?

It seems certain that expert labor administrators will be more strongly influenced by social and class considerations in formulating their labor policies than non-specialist executives. In the first place the specialist is less influenced than the non-specialist by traditional assumptions and prejudices relating to the handling of men. The presidents and managers of the old school have dire visions of the discontent and demoralization which will follow the slightest manifestations of liberality to labor. Concessions will be considered as signs of weakness, labor will become restive and arrogant and will make extreme demands. It will also become lazy, dissipated and generally less efficient. Expert labor administrators are unlikely to be deterred by such illusions from adopting a liberal policy.

In the second place one of the principal reasons for employers' neglect of class and social considerations is their inadequate knowledge of what these considerations are or failure due to absorption in other matters to appreciate their importance. The average non-specialist executive, for example, has a sadly inadequate knowledge of the common class interests of employers in matters of labor policy. It is especially difficult for managers of the traditional type to see their points of common interest in matters of labor policy because the common interest of employers often conflicts with traditional policies of handling men, such as "drive" methods of management to which managers of the old school are strongly attached. So firmly attached are they to many traditional methods of handling men, that they are unable even to see what is their own selfish interest in dealing with men, not to mention their class interest or the public interest.

Most employers also have an inadequate knowledge of the social importance of the labor problem. Many of them,

it is true, realize that there is a labor problem and that it is important, but they lack knowledge and appreciation of the importance of numerous specific aspects of the problem. How important to society, for example, is the lack of a living wage among workers, or what is the social importance of sickness among workers, unemployment, poor housing, child labor, long hours, or what are the problems connected with women in industry? Concerning such matters most employers possess very scanty information and possessing scanty information are necessarily influenced little by the facts in dealing with labor.[7]

The labor administration specialist has a far better knowledge than non-specialist executives concerning the common class interests of employers in labor matters and a better appreciation of the importance of such common class interests. Because he is primarily a servant of the employing class, the labor manager may possess inadequate knowledge and appreciation of the social aspects of the labor problem. Nevertheless his knowledge of the problem and his appreciation of its seriousness and its importance in its various aspects are much superior to the knowledge and appreciation of the all-round executives who give little time to labor matters and whose interest is focused elsewhere.

Even though profit be the chief end of business, business men do not subordinate everything to it. Where definite knowledge of a public or a class interest exists, business men are inclined to make some allowance for it even at the sacrifice of some profit. The more definite and complete

[7] In stating that employers' information concerning the labor problem is slight compared with the information available, I assert nothing which employers are disposed to deny. One has only to turn to the speeches of employers at meetings of their various associations in recent years or to books and periodicals on management to find in abundance the most frank admissions from representative employers that they have neglected the study of the labor problem.

their knowledge and appreciation of the public interest, the larger are the concessions which they are willing to make to it. The supervisor of labor by bringing to the enterprise more thorough knowledge and appreciation of public interests and of employers' class interests in labor matters should exert a liberalizing influence upon the labor policy.

In so far as employers fail of their own initiative to adopt a liberal policy toward labor, they are likely to be compelled by public opinion. The social value of the liberal recognition of social responsibilities by both capital and labor is so great that in the new *mores* which are being developed to supply the needs created by the social revolution we may confidently expect to find broad responsibilities for the industrial welfare imposed upon both capital and labor.[8] The expert labor administrator being more familiar than the non-specialist executives with the content and strength of public opinion on industrial relations is likely to be more responsive to such opinion.

Of equal importance and closely related to the question of in how far the management of labor by specialists will result in a liberal labor policy, is the question of what effect will

[8] The part which the new *mores* in process of development out of the chaos of the past century may be expected to play in the solution of the problem of the relations between capital and labor, is a most interesting and important problem, but one which has been neglected by economists. Economists have directed their attention primarily to the mechanism by which the adjustments might be made between the parties, that is to collective bargaining. Yet the mechanism of collective bargaining is but a superficial aspect of the problem. The relations between capital and labor are fundamentally determined by the *mores*. The relations which will prevail in the future will be determined by the new *mores* in process of creation. In order to gain some idea of the nature of the relations in the future we must predict what the new *mores* on the relations of capital and labor to each other and to society will be.

the handling of labor by experts exert upon the relations of employers to the labor movement.

The traditional policy of employers toward labor organizations has been one of coercion. They have sought to prevent the spread of organization by refusing to hire union men and by discharging men with unionistic tendencies and, when organizations have arisen, have attempted to undermine them by discharging their leaders and building up a group of non-union men within their force, and then at the first favorable opportunity have sought to crush the unions by a lockout or by precipitating a strike.

There is no reason to expect that the administration of labor by experts will result, in the near future at least, in substantial modification of the fundamental attitude of employers toward unions. Under the expert direction of labor administrators, however, the old methods of fighting unions will undoubtedly be more efficiently and more judiciously applied and new methods will be developed to supplement the old.

The traditional coercive policy will be pursued much more efficiently as a result of closer attention to the methods of handling men. The modern employment office with its individual records of all workers and the rapid spread of the practice of consulting previous employers of all hired are formidable black-listing possibilities. Particularly formidable in its possibilities is the policy, which is rapidly spreading, of filling all vacancies except positions of the lowest rank whenever possible from within the force. This policy, should it become general, will greatly increase the seriousness to the worker of the loss of his job, for it will substantially enhance the difficulty to experienced workers of finding new work of the same grade as they previously performed and yielding corresponding wages. Employers so far have not fully appreciated as a means of combating unionism the tremendous possibilities of the plan of organ-

izing the work in their plant into minutely subdivided jobs each of which can be easily learned, of organizing these jobs into systematic lines of promotion, of training each man for the job ahead of him in advance, and then of filling vacancies by the hiring of men for the lowest positions and moving others up.

The closer supervision of laborers by foremen and gang bosses, made possible by relieving the foremen and gang bosses of other duties and by decreasing the number of men under the control of each, facilitates the detection of agitators, men of suspicious tendencies, and the chronically dissatisfied who are likely to instigate a spirit of revolt in the force. The spirit of modern efficiency, which lets the effectiveness of the method in getting the desired results justify its use, may also lead to a more thorough and effective use of espionage to detect agitators.

A policy may be consciously and systematically pursued of weakening the bargaining power of labor. The principal methods of carrying out this policy are likely to be:

1. The taking over more and more by the management of the function of determining how the operation shall be performed. The knowledge of how to do the work in the past has been in the possession of the worker and has constituted one of the main items in his bargaining power. Possession of this information in systematized form by the management renders it less dependent upon experienced workmen for it is in a position to train its own men.

2. The simplification of operations by greater subdivision of labor, rendering it possible to teach new and inexperienced men the operation in less time and with less loss, and hence lessening the dependence of the management upon skilled and experienced men.

3. The development of semi-automatic machinery which lessens the skill required, reducing the dependence of the management upon skilled and experienced workmen.

All of these practices are familiar to managers and have been followed extensively in the past but they have been used not primarily to combat unionism but to reduce labor cost. In the future their value as a means of breaking down the resisting power of labor and of increasing the difficulty of organization is likely to be more thoroughly recognized and they are likely to be consciously and systematically used for that purpose as well as a means of reducing labor cost.

Expert labor administrators in addition to carrying out the traditional policy of employers toward unions are likely to supplement the traditional policy by a new policy based on a new conception of the union movement. Underlying the traditional attitude of employers toward unions has been the assumption that the labor movement, instead of being one of the fundamental social movements of the time, is simply a manifestation of superficial and temporary discontent, often not spontaneous but fomented by "professional agitators." This sort of trouble employers not unreasonably thought could be stamped out or held in check by the use of strong arm methods.[9]

[9] The failure of American business men to appreciate the deep-seated character of the modern labor movement and the necessity of dealing with it not as a passing flurry but as one of the fundamental currents of the time, is well put by Mr. William Hard in an article in the *New Republic*. Mr. Hard says:

"A man acquainted with foreign industrial and political affairs, who will spend three months in Washington meeting business men coming on war business to the national capital from all parts of the United States, would find it difficult not to conclude that American business men, all in all, are the most reactionary class of industrial rulers in the civilized world. To an astonishing number of them the whole labor movement, which has given us trade union governments in the Antipodes and cabinets speckled with Socialists in virtually every free country in Europe, is not a movement at all. It is nothing but a 'trouble.' The very same thing that is shaking Russia, and therefore shaking and remaking the

It is inconceivable that intelligent study of the problems of handling labor should fail to convince expert labor administrators that the union movement is a deep-seated and spontaneous expression of the discontent of the masses. From the perception of this fact must follow the conclusion that coercive methods alone are inadequate to check the movement. The discontent of labor is too deep-seated, the stakes for which it plays are too large for it to be turned aside from its objectives by the inconveniences which the coercive methods of employers impose. Coercive methods impede the movement only temporarily. In the long run probably they stimulate and strengthen it. Every clash quickens the class consciousness of labor, deepens its animosity to capital and strengthens its determination to push its fight to successful conclusion. The temporary victory of the employer is achieved at the cost of increasing the strength of labor's forces.

Not only do strong arm methods fail permanently to check the progress of the labor movement but, because of the animosity which they arouse toward employers, they cause the movement to become more radical and more aggressive in its demands.

The inadequacy of coercive methods as a means of checking the union movement is likely to cause expert labor administrators to seek more effective methods. As the labor movement springs from the discontent of the workers and as this discontent is too deep-seated and too widespread to be held in check or to be stamped out by force, the method

world, thrusts a finger in their factories, and they see nothing but a 'labor trouble' invented by irrelevant agitators, now presumably always German" (*The New Republic,* August 11, 1917, p. 42).

Certainly nothing shows more strikingly how out of touch with the labor situation the American manufacturer is than his oft repeated protest that labor "trouble" is simply the work of "professional agitators."

which labor administrators are likely to adopt is to seek to remove the causes of the worker's discontent. The means of attempting this is the pursuit of a liberal labor policy. The near future is likely to see both a very pronounced extension of the liberal policy to more employers and a continual increase in the degree of liberality shown to labor. The desire of employers to arrest the spread of unionism is the most potent reason for the belief that a liberal policy in greater or less degree will be the prevalent policy among employers.[10]

[10] It will be insisted that an essential of industrial liberalism is recognition by employers of the right of employees to organize and the abandonment of coercive methods such as the discharge of the leaders of workers seeking to bring about organization. In principle this seems sound but consideration of the effects of unions upon the efficiency of the force puts this conclusion in doubt. Does a true liberal policy demand that the employer submit without resistance to the creation of an organization within his force which the experience of other plants tells him will more or less seriously impair the efficiency of his organization? May not employers reasonably insist that unions assume more responsibility for the promotion of industrial efficiency than they have up to the present before employers be expected to concede the free right of organization? The answer to the question is complicated by the fact that many of the restrictive regulations of unions are in part designed to frustrate efforts of employers to break up the unions by discrimination against union men. Unions feel that they cannot abandon these restrictive regulations until they are assured that employers will not discriminate against union men or union leaders.

What effect the pursuit of a liberal labor policy will have upon the union movement cannot be safely predicted. It depends upon how liberal employers are, on how widespread is the practice of a liberal policy, and upon its effect on the standard of living of the workers. Greater prosperity may rapidly breed new and costly wants among workers so that they are more dissatisfied than ever, or the growth of wants may be slow or the new wants may not require great outlay to gratify. All of this is impossible to predict. It is a safe assumption, however, that the pursuit of a

A most interesting question is what will be the effect of the administration of labor by experts upon the success of collective bargaining in the ever growing number of cases in which employers are compelled to recognize and deal with unions?

Prediction is dangerous but it appears that where collective bargaining prevails the expert labor administrator may be a less important influence than elsewhere. The reason is that when employers are compelled to deal with unions they are compelled to develop intimate knowledge of labor conditions and problems in their business, to become familiar with the workmen's point of view and with how to deal with workmen, so that they themselves become experts in matters of labor policy. The expert labor specialist, therefore, will not fill the gap in industries in which collective bargaining prevails which he does in other industries.

Expert labor specialists do, however, possess opportunities to make important contributions to methods of dealing with labor under collective bargaining. In spite of the

liberal policy by employers will not stop the spread of unionism. It is probable also that a liberal policy will not even check the tendency for socialism to become the philosophy of the labor movement. It is probable, however, that a pronounced liberal policy which makes concessions in matters of substantial import to workers (such as hours and wages, rather than in superficial matters of no account), practiced on a wide scale, may retard, without preventing the growth of unionism. It may retard (without ending) the socialistic trend of the labor movement. Most important of all are likely to be the effects of a strong liberal policy upon the spirit and temper of the movement. There is good reason to hope that such a policy will promote a spirit of moderation and rationalism and that, if socialism becomes the philosophy of the movement, it will be an evolutionary socialism concerned with the practical problems of gradually introducing socialism rather than a revolutionary socialism primarily animated by the desire to punish capitalism and with little interest in the practical problems of operating a socialistic state.

great benefits which have come from collective bargaining, it has been far from completely successful. One of the most important unsettled problems raised by collective bargaining is its effect upon industrial efficiency. Unions with all their desirable points have generally arrayed themselves against many primary prerequisites of efficiency. They have insisted upon a flat time rate of payment instead of a piece work, bonus, or premium wage and upon promotion by seniority instead of by merit, they have opposed time and motion study, they have frequently insisted that skilled men perform operations which less skilled men can easily do, they have required the employment of unnecessary helpers, they have restricted output far below what men can easily do without overstrain, they have interfered with the maintenance of discipline by preventing the discharge of men who fairly merited discharge.

The inequity of labor exercising an important voice in the direction of industry (to which, of course, it is entitled) without at the same time accepting responsibilities for the service rendered by industry to society, is obvious. Here as elsewhere the rule must apply that power and responsibility should be coördinate. Employers have thus far met with little success in their endeavors to prevent serious impairment of efficiency by strong unions.[11] As unions become more powerful and collective bargaining more preva-

[11] One reason for employers' failure to prevent serious restriction of output by unions, of course, is that union regulations are not simply arbitrary rules but in a large measure were established to prevent abuses by employers—attempts to overdrive the men and attempts to disrupt the organization by discriminating in favor of non-union men and against union leaders. Employers have fostered the allegiance of workmen to the restrictive regulations by maintaining even after recognition of unions a more or less hostile attitude toward them, discriminating against the most active union men, favoring non-unionists, and generally creating the impression that they will destroy the union at the first opportunity.

lent, the problem of the impairment of efficiency by unions will become more pressing. The development of ways and means to prevent undue union impairment of efficiency while preserving collective bargaining is urgently needed. Perhaps the expert labor administrators can be more successful than have been the non-specialist executives in attacking this problem.

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